

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

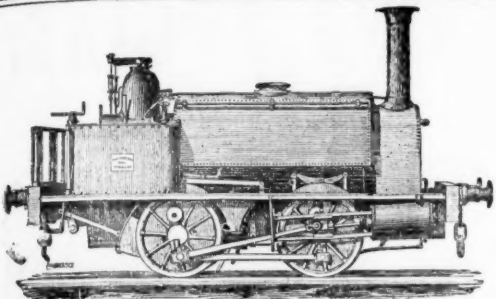
FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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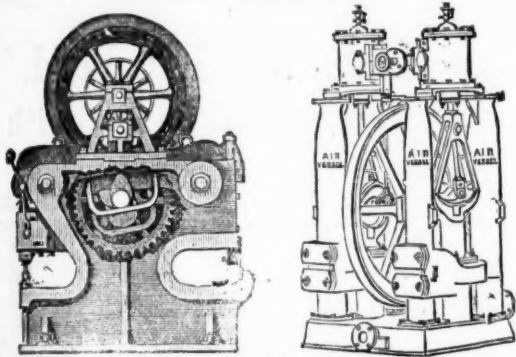
No. 2040.—VOL. XLIV.

LONDON, SATURDAY, SEPTEMBER 26, 1874.

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BAR AND ANGLE IRON SHEARS, PUNCHING AND SHEARING
MACHINES, PATENTEE OF THE DOUBLE CAM LEVER
PUNCHING MACHINE, BAR SHEARS, AND RAIL
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FOR CONVEYING FIRE TO THE
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Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at
the "INTERNATIONAL EXHIBITION" of 1862, in London; at the "IMPERIAL
EXHIBITION," held in Paris, in 1865; at the "INTERNATIONAL EXHIBI-
TION," in Dublin, 1865; at the "UNIVERSAL EXPOSITION," in Paris, 1867;
at the "GREAT INDUSTRIAL EXHIBITION," at Altona, in 1869; and at the
"UNIVERSAL EXHIBITION," Vienna, in 1873.

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POOL; and 85, GRACECHURCH-STREET, LONDON,
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formed that the name of their firm has been attached to
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the trade and public to the following announcement:—
Every coil of FUSE MANUFACTURED by them has TWO SEPARATE
THREADS PASSING THROUGH THE COLUMN OF GUNPOWDER, and BICK-
FORD, SMITH, AND CO. CLAIM TWO SUCH SEPARATE THREADS as
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For Excellence
and Practical Success
of Engines
Represented by
Model exhibited by
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AND 120, GRESHAM HOUSE, E.C.
MANUFACTURERS OF
PUMPS and other LAND ENGINES and MARINE STEAM ENGINES
the largest kind in use, SUGAR MACHINERY, MILLWORK, MINING
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SECONDHAND MINING MACHINERY FOR SALE.
In FIRST-RATE CONDITION, AT MODERATE PRICES.
STEAM ENGINES; WINDING ENGINES; STAMPING ENGINES
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WORK of all descriptions, and all kinds of MATERIALS required for
MINING PURPOSES.

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may be SEEN AT WORK at HAYLE FOUNDRY WHARF, NINE ELMS,
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LASTING FUSE FOR MINING AND ENGINEERING
PURPOSES,
Suitable for wet or dry ground, and effective in Tropical or Polar Climates.

BENNETTS, having had many years experience as chief engineer with
Messrs. Bickford, Smith, and Co., is now enabled to offer Fuse of every variety of
own manufacture, of best quality, and at moderate prices.
Price Lists and Sample Cards may be had on application at the above address.
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L'Administrateur Delegué.
(Signed) A. CHAMPOUILLON.

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furnished the tools for boring to 30 ft. in depth.—McK. and Co.

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This PATENT APPARATUS is EXCEEDINGLY SIMPLE and INEXPEN-
SIVE IN CONSTRUCTION, and is so arranged as may seem best for assisting
the substances to be operated upon.

AFFORDS TO MANUFACTURERS AND OTHERS PERFECT SAFETY
UNDER THE SMOKE AND GASES ACTS.

More effective than condensing towers.
Large chimneys can be done away with. Succeeds thoroughly in condens-
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UTILISES ALL EMISSIONS.
OF GREAT VALUE IN SMELTING WORKS.

The Machine can be seen at work at—

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Of whom also all particulars can be had.

SOLID DRAWN BRASS BOILER TUBES,

FOR LOCOMOTIVE AND MARINE BOILERS,
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ACCORDING TO THE NEW MINES REGULATION ACT.
BEST KNOWN MATERIAL.

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HAMILTON WOODS AND CO.,

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SLUICE VALVES
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SOCKET AND FLANGE VALVES,
up to 12 in., KEPT IN STOCK,
Proved up to 200 lbs. per square inch.

HYDRANTS,
With Gun-Metal Screws, Valves, and Nuts.

BALL HYDRANTS.
AIR VALVES

FOR BLAST FURNACES.
Price Lists on application.

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AMERICAN AND CONTINENTAL STEAM USERS, as well as
ENGINEERS in the UNITED KINGDOM generally, report the above
Composition to be the BEST and CHEAPEST SCALE REMOVER and PRE-
VENTER, IRON PRESERVER, and FUEL SAVER (in many cases a ton of
coals being saved daily, composition only costing about 2s.)

Mr. TURNBULL, the eminent engineer to Messrs. Jackson and Graham, 30 to 39,
Oxford-street and Ogle-street, London, says:—"I have used your composition for
the last three months in Howard's Patent Safety Boilers, and found it a perfect
success,—after trying almost every other composition in the market, all proving a
failure."

Engineers (who have not used it) are respectfully invited to give the liquid and
solid compositions (combined) a three months' trial. It is adapted to all kinds of
boilers and waters, free from acids, easily applied, and cheap.

For detailed information, &c., see circulars, &c.
Address:—G. W. HONEYMAN and Co., Somerset Chemical Works, Gateshead-
on-Tyne. N.B.—Infringements dealt with according to law.

Patent No. 4136
Patent No. 4150

Dated 16th December, 1873.
Dated 17th December, 1873.

IMPROVED VERTICAL STEAM ENGINES AND PATENT BOILERS COMBINED.



The Illustrations show one of ROBEY AND COMPANY'S IMPROVED VERTICAL ENGINES:—

All these ENGINES are supplied with ROBEY AND COMPANY'S NEW PATENT VERTICAL BOILER, as per section illustrated which has, among others, the following advantages over all VERTICAL BOILERS yet produced:—

- PERFECT CIRCULATION OF THE WATER.
- SEPARATION OF THE SEDIMENT.
- GREAT DURABILITY.
- GREAT ECONOMY IN FUEL.

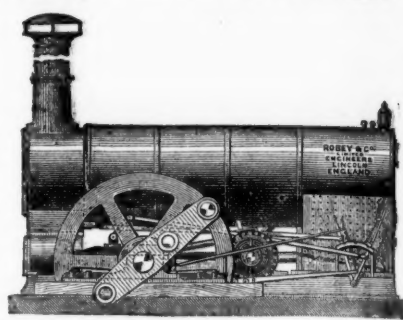
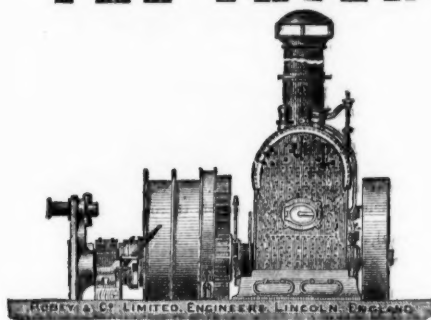


THE PATENT IMPROVED ROBEY MINING ENGINE.

Some of the advantages of the New Patent Engines are as follows:—

- SMALL FIRST COST.
- SAVING OF TIME AND EXPENSE IN ERECTING.
- EASE, SAFETY, AND ECONOMY IN WORKING.
- GREAT SAVING IN FUEL.

This New Patent Mining Engine is free from all the objections that can be urged against using the Semi-Portable Engine for permanent work, because it possesses the rigidity and durability of the Horizontal Engine, and at the same time retains the advantages of the Semi-Portable, in saving time and expense in fixing.



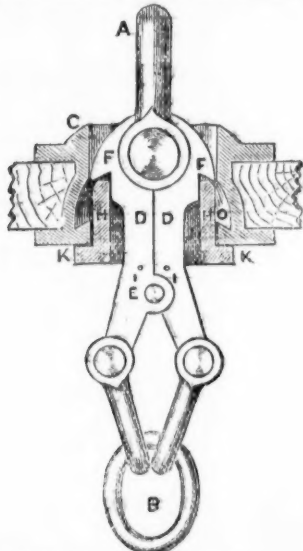
ENGINES UP TO 200 EFFECTIVE HORSE-POWER ALWAYS IN PROGRESS.

Prices and full particulars on application to the sole manufacturers:—

Robey and Co. (Limited), Perseverance Ironworks, Lincoln, England.

CAUTION.—Notice is hereby given, that any person infringing the above Patents will be forthwith proceeded against.

OVERWINDING IMPOSSIBLE.
WALKER'S DETACHING HOOK,
FOR COLLIERIES AND BLAST-FURNACE HOISTS.



The Newcastle Chronicle, July 26th, 1874:—
"Although Walker's Detaching Hook has only been recently invented, it has already been adopted at the Cambrian Colliery, in Northumberland, by Mr. G. B. Foster; at the Kilton, Stanthorpe, and Liversham Mines, in Cleveland; and it is about to be introduced by Messrs. Bell Brothers, J. W. Pease and Partners, Bolekew, Vaughan, and Co., and Swan, Coats, and Co. The value and importance of this invention are undoubtedly such as ought to secure its universal adoption."

Full particulars may be obtained from the manufacturers:—

THOMAS WALKER & SON,
58, OXFORD STREET, BIRMINGHAM.

Engineer's Office, Uplatham, Merseyside, July 31, 1874.

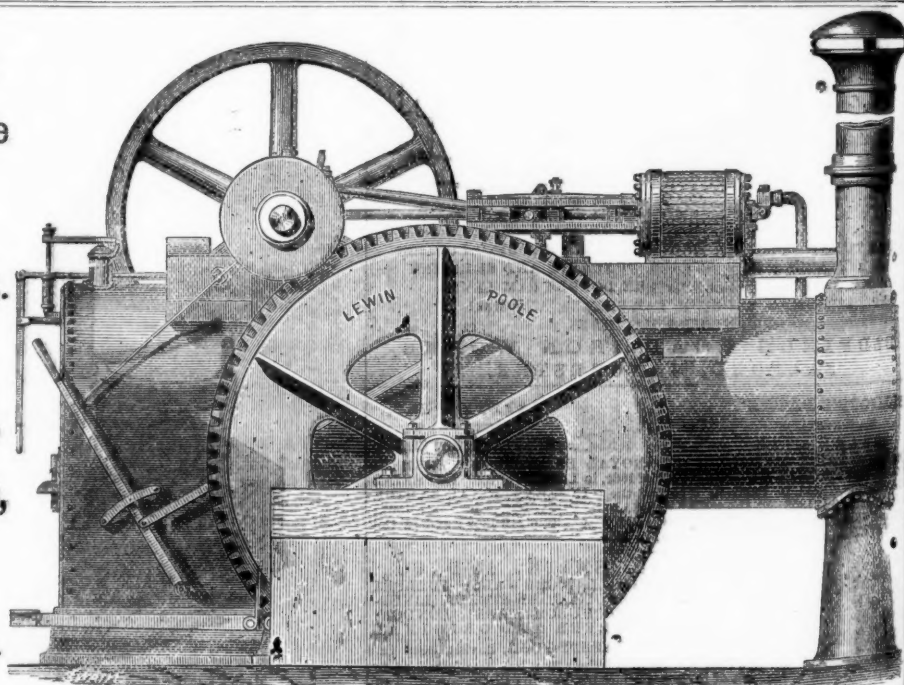
DEAR SIR,—Allow me to congratulate you on the very efficient way in which your Detaching Hook performs the duties it is intended for. I have had the one you sent me for J. W. Pease and Co., at Tockett's Mine, attached to the sinking pit rope, and not only attached, but on Tuesday, the 28th inst., I had the engine run full speed up in order to test it, and am glad to say I never saw anything act more satisfactorily. Everyone that saw it done stood amazed when the rope went over the pulley, and left the kibble, chain, &c., hanging in the ring perfect. After such a trial as this, to my mind, not a doubt can remain of its perfect efficiency. I intend to use them immediately at every other place I have.

Yours truly, W. COCKBURN.

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MANUFACTURERS OF
CAST STEEL FOR PUNCHES, TAPS, and DIES,
TURNING TOOLS, CHISELS, &c.
CAST STEEL PISTON RODS, CRANK PINS, CON-
NECTING RODS, STRAIGHT and CRANK
AXLES, SHAFTS and
FORGINGS OF EVERY DESCRIPTION.
DOUBLE SHEAR STEEL, FILE MARKED
BLISTER STEEL, T. TURTON
SPRING STEEL, EDGE TOOTH MARKED
GERMAN STEEL, WM. GREAVES & SON
Locomotive Engine, Railway Carriage and Wagon
Springs and Buffers.

SHEAF WORKS AND SPRING WORKS, SHEFFIELD.
LONDON WAREHOUSE, 25, QUEEN STREET, CANNON STREET, CITY, E.C.
Where the largest stock of steel, steel tools, &c., may be selected from.

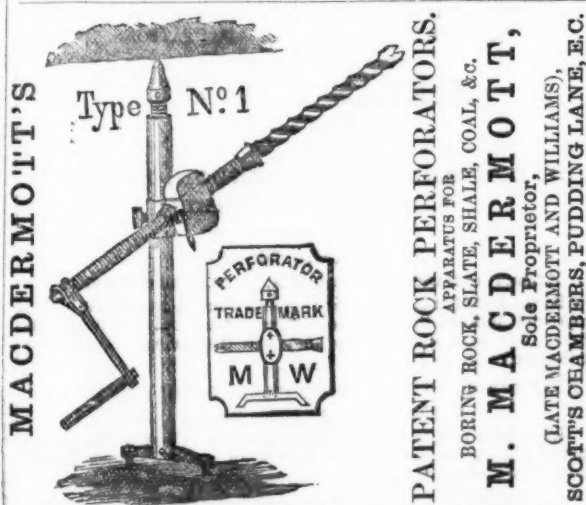
PORTABLE,
Semi-Portable
AND
FIXED
ENGINES.
VERTICAL
ENGINES,
Mortar Mills,
AND
Circular
Saw Benches.



WINDING AND PUMPING GEAR.

For catalogues and particulars, apply

S. LEWIN, POOLE, DORSET.



This is the best hand-worked implement for colliery purposes extant. It can be carried about, set up, taken down, and worked by one man. It bores vertically upward as

well as in any other direction. The rate of work is at least four times as great as by the usual methods. The hole made is straight and uniform, and, therefore, specially adapted for the use of cartridges.
Price list and description, with list of places where the Perforators are in use, on application as above.
A Special Type for Overground Work and Shaft Sinking.

JOHN AND EDWIN WRIGHT,
PATENTERS
(ESTABLISHED 1770.)
MANUFACTURERS OF EVERY DESCRIPTION OF
IMPROVED
PATENT FLAT AND ROUND WIRE ROPES
from the very best quality of charcoal iron and steel wire.
PATENT FLAT AND ROUND HEMP ROPES
SHIPS' RIGGING, SIGNAL AND FENCING STRAND, LIGHTNING CABLE,
DUCTS, STEAM PLOUGH ROPES (made from Webster and Hargreaves
patent steel wire), HEMP, FLAX, ENGINE YARN, COTTON WARE,
TARPAULING, OIL SHEETS, BRATTICE CLOTHS, &c.
UNIVERSITY WORKS, MILLWALL, POPLAR, LONDON.
UNIVERSITY WORKS, GARRISON STREET, BIRMINGHAM.
CITY OFFICE, No. 5, LEADENHALL STREET, LONDON, E.

Just published, Free Edition.
GUIDE TO HEALTH; OR, ADVICE AND INSTRUCTIONS FOR THE CURE OF NERVOUS DEBILITY.—A New Medical Work on the Treatment of Local Debility, Consumption, Loss of Memory, Physical Impairment, Indigestion, and all diseases resulting from loss of nerve power. Illustrated with cases and testimonials. Sent free for two stamps.—Dr. SMITH will, for the benefit of country patients, on receiving a description of their case, send a certificate of advice.—Address, Dr. H. SMITH, 6, Burton-crescent, London, W.C.

Original Correspondence.

AUSTRALIAN TIN MINES.

SIR,—Herewith I enclose memorandum of the quantities of ore sent from the Australian tin mines during the four weeks ending July 17:—

QUANTITIES OF TIN ORE SENT FROM THE AUSTRALIAN TIN MINES DURING THE FOUR WEEKS ENDING JULY 17.

	Tons c. qr. lbs.	Tons c. qr. lbs.
June 18 and 25.....Via Warwick.....	85 0 0	20
June 25 and July 2.....Ditto.....	85 2 3	19
July 2 and 9.....Ditto.....	84 12 3	11
July 9 and 16.....Ditto.....	94 15 2	9= 567 11 2 3
July 16 and 24.....Via Murrumbidgee.....	19 12 2	24
July 24 and July 31.....Ditto.....	30 19 3	6
June 1 and 8.....Ditto.....	35 3 3	23
July 8 and 15.....Ditto.....	30 13 0	11= 116 9 2 8
June 22.....Via Grafton.....	30 4 0	0
June 29.....Ditto.....	2 12 0	0
July 5.....Ditto.....	21 14 0	0
July 10.....Ditto.....	55 0 0	0
July 13.....Ditto.....	4 17 0	0
July 17.....Ditto.....	37 10 0	0= 151 17 0 0
Total.....	Tons 625 18 0	11

Sydney, July 31. C. E.

ANTIMONY IN QUEENSLAND.

SIR,—This metal, a rich lode of which was discovered about two years ago in the Wide Bay district, and about 30 miles from Maryborough, on the Gympie Road, is now assuming considerable importance. At the time it was first discovered there were eight blocks, of 80 acres each, taken up by different parties under the Mineral Leasing Act. Efforts were immediately made to amalgamate the whole of these leases and form it into a large company, but the public would not venture, and after 12 or 18 months delay each party decided to work their own lease. The prospectors' lease was owned by seven shareholders, amongst whom were some moneyed men. They started and opened up the lode in several places, and were so successful that they formed themselves into a registered company of 7000 (14) shares (1000 shares each), and on which they subscribed 1s. per share, leaving 19s. per share to call when required. Their total cash capital at starting was, therefore, 3500.

On June 29 this company—the Neardie Antimony Mining Company (Limited)—held its first annual meeting at Maryborough, the report submitted to the shareholders being beyond their most sanguine expectations, and summarised as follows:—The capital subscribed, 3500; work done, two shafts 70 ft. each, one 90 ft., one 40 ft., and one 31 ft.; total 331 ft. shafts sunk, with numerous drives and a large quantity of ore opened up. The cash in hand was almost equal to the money originally subscribed. The ore the company has raised and sold has paid for all the work done and improvements, and they have let the getting of 500 tons of ore to a contractor at 45s. per ton. They have also made a contract with a carrier to deliver this 500 tons of ore in Maryborough, alongside ship, at 50s. per ton, while a Victoria firm has purchased the 500 tons ore, to be delivered within six months, at 15s. per ton. The lode is easy worked, 2 ft. to 3 ft. wide, and very rich, 60 to 70 per cent. The success attending the prospectors has encouraged all the other leaseholders to start work, and from present indications there is every likelihood of antimony becoming as important an export on our list as tin. There is a rare opening here for an Antimony Smelting and Refining Company, having sufficient capital at command, to purchase the ore on the spot from the miners, as all the other leaseholders are poor men who must sell at once, and no one here knows how the metal should be treated. The prospects of the other seven leases are, I am informed, just as good as the prospectors', the lodes (there are several) are clearly distinguishable on the surface through the whole of them, and where opened up show as good country as the prospectors have.—Brisbane, July 22. RESIDENT.

NEWFOUNDLAND MINING COMPANY.

SIR,—In the otherwise substantially correct report of this company's meeting, published in last week's Journal, permit me to draw your attention to a slight inaccuracy:—The yield of the ore does not average 2 to 3 tons per fathom, but 3 tons to 2 fms.—in other words, 30 cwt. per fathom. Also, Capt. Bradley is not our new manager, but managing director resident on the mine; Capt. J. Nancarrow is our new manager and mining captain.. G. E. WEBSTER. Sept. 23.

ENGLISH CAPITAL, AND AMERICAN MINES.

SIR,—To a constant reader of the Journal the record of disasters which have followed the investment of English capital in American mines during the last four or five years is appalling. The causes of these failures appear to be the same whether occurring in California, Nevada, Utah, or Colorado, as evidenced by your weekly correspondence from those States. Every independent writer but reiterates the experience of the others, and all unite in condemnation of the unscrupulous manner in which the properties have been puffed by the professional speculators and experts whose glowing reports were so liberally paid for, and confidently relied upon; and, also, of the ruinous and unbusiness-like manner with which the companies' working capital has been spent.

In Colorado some English companies own really valuable property; others have made investments in very doubtful ventures; and which here in Colorado could scarcely be given away. In most cases the adventurers have paid far too much for their property, whilst the small amount of working capital reserved by the directors has precluded the necessary development of the mines to ascertain their real value.

I understand that a group of lodes in this vicinity, belonging to a number of individuals, are being consolidated, and are to be put upon the London market. Some of the lodes are valuable, to my own knowledge, and I am glad to hear that the litigation between the owners has been stopped by this compromise. I have no doubt that if the errors I have before noticed are avoided by the purchasers, and ample working capital be supplied to an honest and experienced person, the property will become a steady and paying investment. I refer to the Herculese, the Seven-Thirty, and the John J. Rowe.

Some years ago Mr. Taylor, of London, examined and reported upon the Comet and Magnet lodes, situated on Griffith Mountain here, for some parties in England. The principal intending purchaser who accompanied Mr. Taylor, died on his return across the Atlantic, and the purchase was not completed. This property has not since been brought before the public, but I am informed that their opinion of it was most favourable. Some of your readers may be able to obtain Mr. Taylor's report, and as the mines remain now in nearly the same state as when the report was written, persons interested would find it available on the present occasion.

The discovery shaft on the Comet is over 100 ft. deep, but is now partially filled with surface water. At the bottom is a good streak of fine ore, which improves as depth is gained; and as over \$10,000 worth of ore has been taken out and sold whilst developing the property to this slight extent, it is reasonable to presume that this lode has very considerable value. The owners, all poor men, are unable either to erect proper hoisting apparatus or to complete an shaft, which has been begun, in order to drain it, and consequently, like hundreds of other good lodes, it lies idle to-day. The title is perfect, and a United States patent has been obtained. The same may be said of the Magnet. This lode has also paid for all the work done upon it, notwithstanding the drawbacks they have had from water. An adit is required in this case also, and as the parties are now prosecuting this work I expect to hear of its becoming largely productive as soon as they strike the lode.

These properties could to-day be bought for very low figures, and in my opinion, knowing them well, that an expenditure of a few thousand dollars in further development would immediately put them in the list of dividend mines, and the stock would become a regular and reliable investment.

The silver mining interests of Colorado are making rapid strides.

New discoveries are being made in every direction every day, whilst the older camps are filling up and becoming securely established. A goodly share of American capital is being invested in our mines, generally with commendable judgment. The poorer class of owners are also making strenuous efforts to develop their lodes and perfect their titles. As a result, numerous hitherto unproductive lodes are now producing fair quantities of good ore, for which they find a ready market at fair prices. Mills are continually being built and others enlarged, all bespeaking a flourishing season in the near future. DANIEL ROBERTS. Georgetown, Clear Creek Co., Colorado, September.

EMMA MINE.

SIR,—I understand that the directors of the Emma Silver Mining Company have denied that the mine is seized, but admit that it is attached, at the suit of Mr. T. W. Park; this seems to me a distinction without a difference. It is well known that telegrams have been received in London from Salt Lake, announcing that Mr. Park had taken legal proceedings, and that he had at once attached the mine, also that all work at the mine was in consequence stopped. The directors have received telegraphic advice, informing them of these proceedings, and it is most unfair to the shareholders that they are not also informed in so important a matter; this conduct on the part of the directors little accords with their loudly proclaimed intentions to keep the shareholders promptly informed of all news of importance received from the mine.

If this lawsuit is for the Illinois Tunnel debt, I cannot see how the action can be successfully defended, inasmuch as it consists of notes of hand signed by the directors and secretary of the company for value received; the original claim having been settled in this manner, and thus transformed into quite a new debt. Apart from this claim there is the debt due to Mr. Park by the company for about 25,000.

A meeting of shareholders should be called immediately to take these grave circumstances into consideration, and to decide what course should be adopted in their interest.

AN UNFORTUNATE SHAREHOLDER.

EMMA MINE.

SIR,—I wish, through your widely-circulated Journal, to let my brother shareholders know that there is a rumour prevalent that Mr. Park has attached the mine for his debt of above 43,000, and I think that they, with myself, should have accurate information given as to the correctness or otherwise of this news. Mr. MacDougall has to-day informed me that on Thursday, the 17th inst., the board received a cable message from Mr. Atwood, their manager, stating that the mine was seized and in the hands of the sheriff's officer, and that they must defend the company or within six weeks the mine will be attached! And yet, in the face of this, to-day—the 25th—this startling news is withheld from us poor shareholders, and I hear also that it has been denied at the office.

It will doubtless be remembered by the shareholders present at the meeting that Mr. MacDougall pressed very hard to have a resolution put that the directors should act without remuneration, except from the profits of the mine; also they will remember that the result was the Chairman dissolved the meeting without allowing this resolution to be put. This may account for what I saw to-day, on looking at the cash-book, that our directors (Aug. 25) paid themselves 2817., being three months' salary, due Aug. 15, of 622.10s. each, to Messrs. Gardiner, Hammond, Burnand, and Pemberton, and to Mr. Hutton six weeks' salary of 317., voted by themselves, at the rate of 2500. per annum each, for guarding our interests; and I, therefore, now think one of the questions which ought to come to the front at the meeting demanded by Mr. MacDougall on Sept. 8, by a requisition of 13,000 votes, is the withholding the above-stated information, and thereby breaking the pledge given to us by these very directors at the last meeting, in May.

Every information connected with the mine should be given at once to the shareholders. Is this withholding guarding our interest? This cable message, which is of such vital importance, and upon which hangs the very existence of the mine itself, is systematically kept back from us, who have our money invested in this venture, and thereby full opportunity is given to stock jobbers and those in the secret to our great injury, and that this was taken advantage of there can be no reasonable doubt, for shares fell above 20 per cent. on Friday without the shareholders knowing anything about the news. There is but one conclusion at which we can arrive which has effected this fall, and that is that there has been heavy sales made by some in the secret acting upon this suppressed early information.

I do hope this question will be fully entered into, and that all shareholders, with myself, will keep their stake in the mine, and attend this forthcoming meeting, which, having been delayed to almost the last legal day by the board, cannot now be put off further, being compelled to be held by Oct. 8. On examining the register I find the holding of the whole board amounts to 420 shares, which, at the present price, equals 5257., and these gentlemen, with this paltry interest at stake, and in face of their pledge to the meeting, are withholding this important news from people like myself, who are individually holders of a far larger stake in the mine than the combined interest of all the board put together.

I do not publish my name, fearing to be inundated with condoleance from numerous friends on my being so grievously treated. Sept. 25. AN UNFORTUNATE INDIVIDUAL HAVING 550 REGISTERED SHARES.

THE NASCENT COPPER PROCESS.

SIR,—Will you kindly insert the following remarks on the above in your valuable Journal. I noticed both "Mine Adventurer's" letters and Mr. Emmens' reply, and I must say that from facts which have come under my observation I quite agree with the view taken by "Mine Adventurer." In the first place the fact that copper, when brought to a nascent state from its chlorine solution by the action of scrap-iron, precipitates silver with it, is well known, and I could mention some mines in Cheshire where the cement copper contains as much as 8 ozs. of silver to the ton. In this particular instance the copper is extracted by the action of muriatic acid, and not by brine or roasting with salt; it is, therefore, obvious that the copper precipitates the silver at the same time that it is itself precipitated from its chloride solution, or, as Mr. Emmens has it, when in its "nascent state." To my mind it matters not whether the copper and silver have been brought into a state of chloride from its ores (the ore now in question containing only about 1 per cent. of copper), by either the well known process of roasting with salt, or by dissolving with muriatic acid. When once in this state the principle of the precipitation of the silver by the copper is the same, and as this has been well known and acted on for years, I cannot see what there is new in it. Secondly, Mr. Emmens states that hot brine has never been used in the precipitation of copper, but immediately after states that a steam-jet is employed in Claudet's process, "solely to assist the subsequent copper precipitation," and inasmuch as the solution in this process is a mixture of sulphate of soda and chloride of sodium (or brine), what can this be called but precipitating the copper from a hot solution of brine, by which the wasted ore containing the copper was previously lixiviated?

Again, a relative of mine has for some years past been treating a silver ore containing about 1 per cent. of copper and 20 ozs. of silver to the ton, his process being as follows:—After first roasting the finely ground ore he dissolves it either in muriatic acid or chloroform with salt, in the latter case putting a large excess of salt, so as to form a saturated solution on addition of boiling water, which is kept so by steam. After lixiviating in this manner he precipitates with iron, which throws down the copper as cement, containing about half the silver, the rest of the silver existing as a silicate, which has to undergo subsequent treatment. Now, here is an instance in which a poor ore has for some five years or more been treated by a principle which to my mind is exactly the same as that which Mr. Emmens claims as new. I shall be pleased to see whether Mr. Emmens can point out any difference in his process, as my object is not to say that the "nascent process" is not a new one, but

rather, with "Mine Adventurer," to ascertain exactly in what it is new. ENQUIRER.

P.S.—I may add that when the copper tested lower than 1 per cent. a portion of Spanish ore was added to bring it up, the object being to make enough to throw down the silver. Sept. 21.

THE NASCENT COPPER PROCESS.

SIR,—In order to dispose me to reply further to "Mine Adventurer" I must have some better evidence of bona fides than his last letter appears to me to convey. If his aim be to have a thrust at me, then he must come from behind the hedge out into the open, when I will meet him. Meantime, until he avows who he really is, your readers must take my word that his compilation of extracts is as much beside the mark as his own criticisms are untenable. Old Jewry, Sept. 24. STEPHEN H. EMMENS.

DIAMOND ROCK BORING.

SIR,—This system of boring, which theoretically seems good, has not in practice done so well as prophesied. The particulars of work done by it which have been published are, I fear, picked examples. At a meeting of the Welsh Collieries Company, some little time since, the Chairman was rather severe in his remarks upon some diamond boring executed on his company's property. He said "They entered into a contract with the Diamond Rock Boring Company, he might as well say at once that that company's operations had not progressed to the satisfaction of the directors in any way. They did not commence the work at the time they promised to do; they do not employ a sufficiently responsible staff to carry the work out; and they did not succeed in getting to the depth they ought to have done, and they have also met with some difficulties even at the depth they have now reached. In his private opinion they had not succeeded as a public company having a reputation to maintain, as they should have done in letting this company have satisfactory information of what is to be got from the strata below. He did not think they had carried on their work with credit to themselves, and they had delayed this company considerably by not letting them have proper information." This certainly does not agree with the encomium passed on the drill by Mr. Bassett at Cardiff. The boring at Rampside, commenced in March, 1873, has up to the present attained a depth of 1450 feet, which gives an average of 20 feet per week. This is certainly not an extraordinary speed, and Mather and Platt's machine, if I mistake not, has done better work than this.

I hope some of your readers can furnish the information asked for by "E. C.," as I believe that not only is the boring by the diamond drill very expensive, but that in the great majority of cases the work executed by it is not at all satisfactory, either as regards speed or certainty of results. R. T. L.

CONGLOG SLATE AND SLAB COMPANY.

SIR,—In the Journal of Sept. 5 I read an interesting letter from Mr. Edward Betteley respecting this quarry, and it affords me much pleasure, as a practical quarryman, to be able to add my testimony as to the value of the property. After a full inspection of it and other quarries in the celebrated Festiniog district, I do not hesitate to state that there is not a better property to be found in the Principality, nor one where so large an amount of development can be accomplished with a small capital, as Nature has wonderfully assisted in lessening the expense. The vein is the largest I have ever seen, and the cleavage and quality all that can be desired, and from the galleries already opened large returns can be made as soon as the machinery now being erected is ready for slate-making. Owing to the slate vein being so large the profits must be enormous as the development progresses, and in the course of two or three years it will exceed the expectations of the most sanguine. My opinion of this quarry is that it will prove to be the largest and most remunerative in that celebrated district, and that whoever invests in it will be well repaid for the outlay. W. BISHOP. Bradford, Sept. 23.

GUNNSLAKE DISTRICT—RECENT DIVIDENDS.

SIR,—"D. W. T. M. C." having identified himself with the mine referred to in the paragraph which appeared in the *Mining Journal* a few weeks since, will confer a favour on the mining public generally by availing himself of the privilege he possesses as a shareholder of referring to the books of the company, from which he will be enabled, without difficulty, to furnish the following simple statement of accounts:—The total amount realised from sales of minerals, deducting therefrom the usual working cost of the mine, including labour, underground and on the burrows at surface, dressing cost, machinery repairs, timber, iron, coals, candles, powder, directorship, management, agency, &c., showing at a glance the actual profits to the date of the last meeting, when the dividend was declared.—Sept. 22. A. B. C.

THE MONEY MARKET FOR SEPTEMBER MONTH.

SIR,—The student of the Science of Investments must be searching and earnest in his investigations if he means to win, and not lose, through his operations, either as "investor or speculator." As we have often remarked, we do not believe that anything which may be spoken or written will materially diminish the current of bold speculation indulged in by wild and reckless "outsiders"—that is, spendthrifts and gamblers; yet if anything will tend to produce that effect it assuredly will be found in pointing out those undertakings that are based on sound foundations, possessing inherent and expansive worth, paying good present and growing future gains, while associated with minimum risks to purchasers. Again, on the other hand, it cannot but be useful to "One and All" to glean at a glance the difference in interest and market value of shares and stocks, as, for instance, Government State Stock (British, Colonial, and Foreign), banking, finance, insurance, and miscellaneous shares, railway, gas, water, canal, hotel, dock, steam, marine, telegraph, land, &c. Again, mining companies (British and Foreign), including iron ore and coal, copper, lead, and tin, showing their strong and weak points, prospective value, and whether contractive or expansive, should above all things be considered.

During the month of September Consols have only fluctuated from time to time fractional rates, the closing price of Aug. 29 being 92½, and that of to-day 92½ to 92¾.

Unquestionably the best and leading feature of the market has been that of Foreign Stocks and Bonds. These are fully paid up, and whatever fluctuations take place in the quotations of prices from day to day the public recognize the absence of all liability to calls, and the advantages of half-yearly substantial dividends. There is a large business transacted in Turkish, Egyptian, Spanish, Italian, and Peruvian for speculative transactions, and the range in prices admit of rapid and large gains to jobbers for settlement on the bi-monthly account days. Brazilian, Bolivian, and Costa Rican are still more adventurous, and cannot be dealt in for investment without incurring heavy risks. Mexican, Venezuelan, and Honduras are associated with every distrust as to the date, if ever, when dividends will become renewed, and exhibit the very reverse of the confidence felt in the integrity and honour of France, Russia, America, Turkey, and Egypt. The stocks of Turkey are evidently gaining position, the completion of a 40,000,000. 5 per cent. loan with the Imperial Ottoman Bank is a great success, while the powers extended to the latter institution are likely to generate confidence in the internal management of the finances of the Empire. Joint-stock bank shares, on the whole, show firmness. It must not be lost sight of, however, that these institutions are associated with risks, and though in days of commercial progress and serenity the exterior may show every evidence of soundness, yet it behoves all to remember that in days of panic and financial collapse no description of property is subject to such sudden and fearful reactions, as witness the days of 1866 and 1867. The issue of Gurney and Co., Royal Bank of Liverpool, Barnards and Co., Commercial of London, Royal British, with many others that unhappily came to grief.

Little change has taken place in insurance companies, yet, on the whole, they show firmness.

Miscellaneous shares have been dealt in to a limited extent, yet prices, on the whole, have been well sustained. Coal, iron, and ma-

[For remainder of Original Correspondence, see to-day's Journal.]

ANDRE'S HYDRAULIC MINING PUMP.—The transmission of the force generated by the motor at the surface, whether that motor be a steam-engine or a water-wheel, to the pumps on the several levels in a mine has ever been a difficulty with mining engineers. The great force requisite to bring up a large volume of water from a depth of many fathoms, and the long distance through which that force has to be transmitted, render it necessary to employ a connecting medium of great strength, and consequently of great weight. That which has been generally adopted consists of a system of wooden rods, and the efforts of engineers have been directed to the improvements of that system so as to reduce to a minimum the loss of power occasioned by its employment. This minimum has now, probably, been reached, for the system of pump-rods, as at present existing in the county of Cornwall, has attained a degree of perfection beyond which it seems hardly possible to carry it. Yet its most enthusiastic admirers will readily admit that in its most perfect condition it is the source of a great loss of power from friction, especially when the rods are inclined or flat; that it offers considerable difficulties to a change of direction, so much so that many changes are impracticable; that it occupies a large portion of the space in a shaft; that its great weight necessitates the use of balance-bobs; that it is expensive, and that it needs a good deal of attention to keep it in perfect working order. These defects are inherent in the system, and cannot, therefore, be removed by any improvements that may be devised. Many attempts have been made to find a satisfactory substitute for this system. That most in favour is to take the engine underground, and either to generate the steam there or to convey it down from the surface through felted pipes. The condensation, however, which must inevitably take place in the pipes, no matter how perfectly felted, renders the latter method impracticable for great depths. The system of erecting the engine underground is open to many objections; but these are so well known to practical mining engineers that they need not be fully referred to here. It may not, however, be ill-timed to call attention to what may be considered its two main defects, which are—first, the liability of the pumps to fail by being drowned out, a contingency that would be pretty sure to be realised in the case of a coal mine, by an explosion of gas driving the men out of the workings, or by a great and unexpected influx of water; second, its applicability to steam power alone. The alarming increase in the price of fuel has turned the attention of mining men to the further utilisation of water power

A MODEL HYDRAULIC MINE.—We were able this week to get some facts concerning the operations of the Spring Valley Mining and Canal Company at Cherokee Flat, Butte county, California. We are rather glad to get some notes from the locality, as the company referred to is spoken of as one of the best managed and worked in the State. The outfit is complete, and if visitors to California want to see a representative hydraulic mine they should visit the Spring Valley Company property. The claim comprises 1500 acres of ground, containing pay gravel to an average depth of 200 feet. The company has expended in the works, flumes, ditches, reservoirs and water privileges over \$1,000,000. They have on the line of their pipe about 4 miles of iron pipe, 30 inches in diameter. One section of this pipe conducts the water across the west branch of the Feather river. It is laid in the form of an inverted syphon, and has a vertical depression of 856 feet. The position of the pipe has a depression from the level of the sea to the discharging arm of 856 feet. The receiving arm has a head of 100 feet vertical pressure. The length of the entire syphon is 2½ miles, and the pipe is 30 in. in diameter. There are 10 miles of sluices varying from 6 to 8 feet in width, and 23 undercurrents from 10 to 12 ft. in width. For the year ending July, 1874, the sum of \$476,112 in gold was ordered and shipped. They employed 160 hands all the year round, and expended \$125,000 during the same time, of which \$85,534 was for labour; they paid out alone used by the company for the year cost \$13,300. The total length from the creek, and from the head waters of the west branch of the Feather river, to the ditches are 6 ft. wide at bottom and 8 ft. wide on top. This company is known as "the longest run a constant stream of 2200 inches of water." They are a 4 ft. deep, and corporation;" that is, the stock is not de-^{scribed}. The company may be judged from the fact that few persons. That the claim is profitable may be judged from the fact that they paid out \$150,000 in dividends during the year ending July. During the year they constructed a continuous line of sluices 3500 ft. in length and 8 ft. in width. These sluices are built down Sawmill ravine. Three undercurrents were built and three abandoned. The mining claims purchased during the year ended July amount to \$98,000. The mining claims purchased during the year ended July amounted to \$1,344,496, and the actual liabilities amounted to \$145,869. The officers of the company are as follows:—Robert Judson, president; Mr. R. C. Pulliam, superintendent; Louis Glass, secretary; Richard Abbey, the Wm. Gregory, Isaac E. Davis, M. R. C. Pulliam. The company's capital is \$1,273,175, and it has been said that they will send a bar worth double this value to the Centennial Exhibition. A rather peculiar feature in this claim is the presence of diamonds. They are found in the washings; most of them, however, are small. The first method of rooking. One diamond worth \$350 were cut in Bodwin in 1864, and last year were tested in Amsterdam and Paris, and pronounced diamonds. Prof. Silliman has examined these sands carefully, and concludes that diamonds are found in the Cherokee washings as yielding chromite, magnetite, mica, diamonds, zircon, topaz, quartz in several varieties, chert, pyrites, limonite, rutile, pyrites, garnets, epidote, and almandine. One of the diamonds found weighed 2½ carats.—The Mining and Scientific Press (San Francisco).

Meetings of Public Companies.

GREAT SNOWDEN MOUNTAIN COPPER MINING COMPANY.

The second ordinary general meeting of shareholders was held, on Saturday last, at the London Tavern.

Mr. ROBERT CHARLES in the chair.

Mr. CROSBIE (the secretary) read the notice convening the meeting, and the directors' and manager's reports were taken as read.

The CHAIRMAN said he would like to make a few remarks with reference to the general subject which had brought them together, and first he would deal with the balance-sheet. The directors had made it explicit as they could, and the policy which they had adopted from the beginning had been to appropriate the money subscribed by the shareholders as far as they could to the development of the property.

The first few items, naturally and rightly, as provided by the Articles of Association, belonged to the capital account, and were represented by the items down to "directors' fees," and upon this subject he would like to make a few remarks, for the purpose of calling the special attention of the shareholders to the subject of directors' fees. The directors, having been placed in charge of the property, and having had the entire confidence of the shareholders throughout, had thought all along that the amount fixed by the Articles of Association as the amount of payment to the directors was a very large one—not too large for a well-developed concern, yielding profits to the extent which they all hoped that the Great Snowden Mine would yield, but for the preliminary development of the company the board were unanimous in thinking that the amount was one which would not be right for them to draw—(hear, hear)—and if the shareholders would notice the other side of the accounts they would see that during the first few months of the company's existence the whole board had only drawn 3167.

The directors had an impression that the shareholders would not wish them to work for nothing, but they might rely upon the directors not taking the amount specified in the Articles of Association. He hoped, therefore, that the board would have the approval of the shareholders in having limited their drawings to the amount mentioned. They proposed that the other items in connection with the management of the company should be carried to a suspense account if the shareholders would give their sanction, so that the present shareholders would not be the only persons who would have to pay for the development of the property, but it would be joined in by all who might participate in the profits. With regard to the expenditure for the development of the mine, the directors had endeavored to be as economical as the circumstances of the case would allow them to be, and if the shareholders would look at the balance-sheet and the manager's report they would see that the managers had set forth in detail the way in which the money had been expended. They had now got as complete a place for the development and production of ore as any mine of its class in the United Kingdom. The first proceeding was that the directors had taken into consideration to appoint a manager, in order that the property of the company should be entrusted to the very best way. They secured the services of a gentleman of high reputation—Capt. Roberts—with whom they had testimonials of a very high class, and during the first year the mine and its business was placed in his hands for development, but the directors found that however good a manager he might be there were almost insuperable difficulties in the way of accommodation at the mine for the able men, and houses had to be built. These were now complete, and the report would show that they were inhabited by the men. But apart from and beyond it, as they went on, and Capt. Roberts's work proceeded with, the directors did not feel satisfied that he had the go in him necessary for such a large affair as the Great Snowden Mine would be, and they, therefore, obtained an amicable termination of the agreement with him. They were then introduced to Capt. Spargo, the present manager, who had since his appointment devoted himself most assiduously to the development of the mine. This would be clearly seen when he reminded the shareholders that on July 15 a committee of shareholders went to the mine and saw the machinery set going, and from that time to now the work had proceeded with every possible energy, and the result was that they were now commencing to send copper to market, and he supposed that of the first 100 tons, which they expected would be ready by now, about 65 or 70 tons were in the way, besides what was now being dressed, which would be in the market in the next few months. The mine was now in a fair way of being developed with good success, provided the necessary capital was given to the board to continue work and bring the mine into thorough development, which it would take some months to do. They, therefore, proposed that the shareholders should be offered 1000 of the remaining shares of the original capital amongst them at par, for unless there was capital it must be understood by those intimately acquainted with the working of mines that the work could not possibly be attended to properly. Capt. Spargo in his report as to the mine showed the capital he required to make a clear profit of 18000, or 20000, a year. The object of the board was to work the thing gradually and profitably, so that the mine should not have a short life, but to bring it into a paying state, not merely temporarily, but as a long continued and prosperous business.

Mr. A. P. MACLEWEN seconded the motion.

The CHAIRMAN wished further to say that they had requested Capt. Spargo to come to the meeting to answer any questions as to the position and prospects of the mine, and when the routine business had been disposed of he would ask Capt. Spargo to make a few remarks.

Mr. CLARKE said he believed the mine was a thoroughly good one, but he thought the expenditure was a great deal too large. The London office expenses, including the directors' fees, amounted to 2167, which was a very large sum, and he thought that a very unnecessary sum. He did not see why this mine should not be managed as many other mines were, with no other accommodation than at the mine, and the business was done at a very small expense indeed. He thought that in the matter of expense they were beginning wrong in this mine. There was also a very large amount of debt (13,000), which must be paid off before any dividend was paid. It would take a long time to pay off the 13,000. Then there was 1800, to pay for interest, so he thought the period was rather remote when there would be sufficient coming out of the mine to pay a dividend. He came into this mine for the purpose of getting out of it, and he would take some pains to answer any questions, upon the report as to its excellence, but he was sure, from the character of the directors, that they had a bona fide thing. On that point he had not altered his opinion, but he thought the London expenditure might be cut down. There could not be much work to be done in London, and he thought the directors' fees were much too large—in fact, the directors were as well paid as those of the Bank of England. He suggested that the shareholders should get out of the clause in the articles, and when the dividend was paid, if they left the remuneration in the hands of the shareholders he was sure they would be well satisfied with the amount which would be awarded them. He was afraid the large amount paid to the directors, and the large amount of office expenses, would prevent the company getting the amount of capital which was required. Because people who were sharp would look to see what chance there was of a dividend, and whether the thing was being managed expensively or inexpensively. He hoped the directors would take steps to erase that 15000, a year from the Articles of Association, and leave it to the shareholders to note the amount of remuneration which should be paid. For his own part he should hesitate to take any further shares whilst things remained in their present state. He believed the concern was really good at the bottom—he had no misgivings about that, but he did not see how the shareholders could expect to get much for themselves whilst the expenses were so high.

Mr. BROWNE said he fully endorsed the observations of the last speaker. It was preposterous to suppose that a company could succeed with such charges. There was really a working capital of 85000, and it cost 25000, in London to manage it. He thought the least the directors could do would be to very largely reduce the fees. He thought the least the directors could do would be to very largely reduce the fees. He thought the least the directors could do would be to very largely reduce the fees.

Mr. WILKES asked whether the mine was at present stopped, as he had heard from the prospectus that it had not been altogether carried out.

The CHAIRMAN said that Mr. Clarke, when making his remarks, could hardly have borne in mind the observations which he (the Chairman) had made in his opening remarks. He reminded Mr. Clarke that the amount taken by the directors for their fees was for a period of 15 months. It would have been much more satisfactory to the directors if they could have simply put down in the report the amount they had taken—3200; but inasmuch as the full amount appeared in the Articles of Association as the money to be taken the directors were obliged to put it in the report, but the difference was on the other side, and the directors had no intention of taking it. It would be no breach of confidence to state that this question had been the very serious consideration of the board, and they had decided neither in this year nor in future years would they take more than half the amount named in the Articles of Association until the shareholders had received a dividend of 10 per cent. The directors did not come to manage this concern for the purpose of fleecing the shareholders, nor did they come with the intention of taking for themselves money which ought to be appropriated to the development of the mine. Probably an extraordinary general meeting would be called for the purpose of considering other matters of importance, and in all altering the Articles of Association as far as the directors' remuneration was concerned, and fixing the amount at such a sum as might be agreed upon, subject to the payment of a 10 per cent. dividend to the shareholders. He thought the remarks he had made in answer to Mr. Clarke would also answer Mr. Browne's observations. As to the Saturday meeting, the directors had no intention whatever of throwing any inconvenience in the way of the shareholders; on the contrary, as Saturday was a half-holiday, the directors thought that the shareholders would have more time to talk over their affairs, and, moreover, it enabled two or three of the directors to attend who would not otherwise have been enabled to do so.

Mr. WILKES said that the question about the stoppage of the mine, he could assure the shareholders, and most probably that was what gave rise to the rumour which Mr. Wilkes had heard. The directors had had a great deal of difficulty since they took the matter in hand in regard to the question of labour, but things were now put on a better footing in that respect, and he believed that they would go on better in the future.

Mr. WILKES said that the mine was stopped entirely.—The CHAIRMAN: No. The then went on to allude to two or three items in the accounts. Referring to the preliminary expenses, he said that the directors had taken care to protect the shareholders until they saw how the mine was progressing, for out of the 40000, which was to be paid, had been paid, and of course the remainder would be taken as a debt which must be paid within the next two years, unless the bills were renewed.

Some further unimportant discussion ensued upon some of the items in the accounts, and in answer to a further question.—The CHAIRMAN said: You may conclude that we shall take care to put the subject of the alteration

of the Articles of Association before you. This question is one of the important questions which will be brought before the extraordinary meeting.

Mr. BROWNE said he was perfectly satisfied with the statement, and pledge of the Chairman relative to the alteration in the Articles of Association.

The CHAIRMAN said that the additional capital would be required to push on the development of the property. If all the calls were in there would be sufficient to pay the debts at the mine. There was also 6000, worth of copper, as estimated by the manager, which he hoped would shortly be realised.

Mr. WILKES asked whether the directors had had their attention called to the new process of treating poor copper ore?

The CHAIRMAN said it had received the careful attention of the directors, and would continue to do so.

The resolution for the adoption of the report and accounts was then put to the meeting, and carried.

Mr. KEMP was then re-elected auditor.

Capt. SPARGO said that since the first ore had been treated some slight alteration had been made in the dressing machinery, and it was found that the results were something like 10 per cent. more than on the first 36 tons. The additional machinery would enable them to treat 250 tons per week, which would give 65 tons of saleable ore.

Mr. WILKES asked if there was an unlimited supply of ore?—Capt. SPARGO: As far as we can ascertain we have an almost unlimited supply of ore.

The CHAIRMAN asked Capt. Spargo whether he believed they would get a better class of ore as they went down?—Capt. SPARGO said he believed they would.

Mr. CLARKE: Have you any difficulty with the water?—Capt. SPARGO: No, we have not.

On the motion of Mr. CLARKE, seconded by Mr. WILKES, a vote of thanks was passed to the Chairman and directors, and the meeting then terminated.

FULLER'S REEF GOLD MINING COMPANY.

An extraordinary meeting of shareholders was held at the offices, Lombard-street, on Tuesday, pursuant to a requisition—1. To consider and investigate the management of the company's property by the directors here and that of the committee at Sydney.—2. To enquire into the nature and extent of the expenditure which is now being incurred at the mines.—3. The payment of the preliminary expenses and the payment of the deposit money.—4. The remodelling of the committee at Sydney.

Mr. W. HARDINGE TYLER in the chair.

Mr. J. BROOKE BOOTH (secretary) read the notice convening the meeting.

The CHAIRMAN said the directors were perfectly prepared to give every information with regard to the mine, also as to their conduct and their management, as well as to explain all they had done, and likewise what the committee in Sydney had done; and they would be very glad to hear any shareholder raise any point upon which the board could afford additional information.

Mr. HICKEY asked if the directors had prepared any report?

The CHAIRMAN said the report and balance-sheet would be submitted at the general meeting, to be held next month. The board wished the shareholders to investigate every point, and would afford every information.

Mr. F. WITHERBY said they wanted to ascertain, if they could, whether the property was absolutely valueless, or whether the information received from several sources (except through the directors) had any truth in it. They were told in the prospectus that it was a very wonderful concern, and they all expected to have a very large income from their shares for many years to come. The prospectus was rather more glowing than was usually the case, even in a gold mine, but from that time the reports from the directors had been that quartz could not be found, or if found it would not pay for crushing. The object of the requisitionists, and those whom they represented, was to try to get at the truth. He represented indirectly a considerable number of shares, and he wanted to arrive at the truth. He had heard it stated that he and a few more had been charged with attempting to turn out the directors, and to put themselves in their place. He wanted to say plainly and unmistakably that such was not the case—nothing whatever was further from their intention. He simply wanted to ascertain beyond doubt whether the mine was valueless or not: if valueless to take steps to wind-up the company; but if, on the other hand, the property was valuable to bring about a radical change, to ensure its proper development. He had been told that if some of these gold mines, situated in Australia or elsewhere, paid very well no return whatever was made to the shareholders, that if nuggets were found the workmen pocketed them, and that if the gold got beyond the workmen the manager, in many cases, quietly absorbed it—in other words, while the mine paid everybody working upon it, it did not pay the shareholders. He thought, perhaps, the directors had been rather remiss in not publishing on the receipt of every mail the advice to hand, as was done in other foreign mining companies.

The CHAIRMAN said that the most satisfactory mode to obtain all the information required would be to appoint a committee, before whom everything should be placed—the books, accounts, and all the instructions. That investigation would show the directors had not neglected the interests of the shareholders.

Mr. WITHERBY said his intention was to propose the appointment of a committee to investigate the affairs of the company, and to prepare a report to be submitted to the shareholders on or before Oct. 14, and that in the interval all action on the part of the directors be suspended.

The CHAIRMAN said it would be necessary to have a second meeting to confirm that resolution, and stated that the board would accept the nomination of a committee, so as to prevent the necessity of a confirmatory meeting.

Mr. WITHERBY said he understood the ordinary meeting would be held next month, and it was desirable that before then they should have the report of the committee.

The CHAIRMAN said that the board were perfectly willing to consent to any course that would enable the committee to commence their investigation at once, and, moreover, the directors were perfectly willing to resign their seats into the hands of the shareholders.

Major-General HADEN said the resolution had been proposed by a shareholder who was a very considerable debtor to the company, and held a large number of shares upon which two-thirds of the allotment money had not been paid, and was one of the vendors of the mine.

A SHAREHOLDER asked whether every director held his qualification of 30 shares? Major-General HADEN said he did not, and never intended to do so. He only held one share, having been appointed under the Articles of Association, by which it was not necessary for a director to hold even one share. But that was not the point—all he now contended for was the good of the company and the interest of the shareholders.

Mr. WITHERBY disclaimed any personal feeling whatever against the directors, simply because he knew nothing about them, nor did he know anything about the committee of management. He had been told he had not paid the calls upon his shares. According to clause 92 of the Articles of Association the directors were empowered to pay out of the capital of the company all reasonable charges in its formation. He claimed with those he represented an amount rather more than due upon his calls, but the directors refused to pay it.

Major-General HADEN said that the various items set forth by the solicitors of these gentlemen had been embodied in a case and submitted to Mr. Lindley, the well-known barrister, and the opinion had been sent to these gentlemen, but no reply had been received. Mr. Lindley stated that the sum due other than the 20000, mentioned in the Articles of Association was 4317, while, allowing the 20000, the amount due from these gentlemen for calls, was 4328. Upon this authority the directors made out this sum to be due from Mr. Witherby; this had been made out by the approval of their own solicitor, and how far the directors should act upon this opinion the shareholders were best able to judge.

Mr. JOSEPH said he was a stranger to the constitution of this meeting, but it had struck him from what he had heard that there were various constructions which must be looked at from different points of view. The capital of the company was divided into 15,000 shares, of which 4000 were contributing shares, which represented 40,000. About 2500 shares were a portion of the purchase money paid to the gentlemen who constituted themselves the vendors to the company in New South Wales, from whom they purchased the mine. In appointing a committee they should be careful to see that it was constituted of the holders of the various classes of shares, and certainly not entirely of those holding non-contributing shares, who had never paid anything towards the capital of the company. This property belonged to the Denison Gold Mining Company, the history of which he happened to know, having been a shareholder in it. The Denison Company received an offer from England for the purchase of the mine; the communication was received from Mr. Hickey, and a special meeting was called to consider the question. As the Denison Gold Mining Company had expended about 15,000, and had about the same amount to call up, and did not care to dispose of the whole of the mine, unless at a very large sum, they resolved to sell for 20,000, four-fifths of their property. He had understood that they were willing to part with this proportion of the mine for 4000, more than had been paid up, retaining one-fifth, costing them nothing, provided there was a guarantee that another company should be formed with at least as much capital as the former company had to call up—15,000. A deposit of 2000, was paid to the Denison Company, with an understanding that the thing should be completed within a certain time, or the deposit forfeited. The transaction was carried out as between the Denison Company and the Fuller's Reef Company, and was attended with difficulty arising from the first transfer being made to Mr. Hickey and his friends, which would have to be registered in the colony. To facilitate the arrangement it was decided to transfer direct to the Fuller's Reef Company. Although Mr. Hickey, the purchaser, put the property on the market for 150,000, and the money actually paid over by the Fuller's Reef Company was the paltry sum of 20,000, Mr. Hickey entered an attachment on the agents of the Denison Company a petition of sale of the property. He thought it as well that the shareholders knew everything, and, therefore, he had thus stated the history of the company. Now, I understood the Fuller's Reef Company was formed with a paid-up capital of 40,000, and since he had

been in that room he had for the first time heard that even that had not all been paid up. Were these shares sold?

The CHAIRMAN said the shares were allotted, and the allottees had not paid their calls. Arrangements were made for payment. The sellers of the mine to the Fuller's Reef Company entered into an engagement that if the calls were not paid they would pay them, so that the company could proceed against the sellers if the calls were not paid up.

Mr. WITHERBY asked who were the sellers?—The CHAIRMAN: Mr. Hickey and others.—Mr. HICKEY: I was only trustee for the vendor.

Mr. JOSEPH: Who are the people who sold the mine?—The CHAIRMAN: I think that is hardly necessary; the property has been sold and made over to us.

Mr. JOSEPH: There being only 4000 contributing shares, 2500 were allotted to Mr. Hickey and his friends, and 4000, which I suppose represents the profit of the transaction. If these shares had been saleable on the market they would possibly by this time have been turned into money, and held by persons who had paid 5000 for them; but, instead, they are now in the hands of persons who have not paid anything for them—in other words, the "syndicate." It is desirable, for the protection of the contributing shares, that the committee should not consist entirely of members who held free shares, costing them nothing; nor should I like to see the management of the company fall into the hands of that class of shareholders. Although I have some interest in these 2500 shares, irrespective of others upon which I have paid, my idea of the equity and morality of the case is that they should be divided among those who contributed the capital. This and other considerations make it more than probable that there should be a committee. With regard to remodelling the committee in Sydney, I may say that I received a letter from my partner, Mr. J. L. Montefiore, a member of that committee, tendering his resignation, his time being so much occupied, having large duties to perform as Chairman of the Chamber of Commerce, and a member of the Upper House; but if the meeting with it I will ask him to act till his successor has been appointed.

Mr. HICKEY: Where you not one of the directors of the Denison Mining Company?—Mr. JOSEPH: Yes.

Mr. HICKEY: When the prospectus was issued?—Mr. JOSEPH: It is very possible as a provisional director.

Mr. HICKEY: You state that 15,000, had been called up, and that there was 15,000, to be called up; but at the time the mine was offered to me only 2s. 6d. per share had been paid, and the shareholders refused to pay any more.—Mr. JOSEPH: That statement is entirely contrary to fact as to the payment of only 2s. 6d. per share.

Mr. HICKEY: As to the syndicate that contributed 8000, towards floating the company and became responsible for 9000, more, and have not received one farthing. They have not received a single farthing, and are responsible for 20,000, the whole money subscribed having gone, or is going, to Australia.—Mr. JOSEPH: And if you got a market you would have made 27,000.

The CHAIRMAN said it was very desirable that some parties who had paid upon their shares should be upon the committee.

Mr. WITHERBY said most distinctly that was the class of shareholders they wanted, and two out of the three names he had proposed had paid for their shares. He then proposed that the following gentlemen—Messrs. G. Broderick, C. Witherby, J. O. Harrison, and J. C. Goodall—be appointed a committee to investigate the affairs of the company, and that the directors be requested to afford every information which they may require.—Mr. CHAIRMAN: I seconded the proposition, which was put and carried unanimously.

The CHAIRMAN said the board would be most happy to afford to the committee every facility and assistance in their power.

Mr. WITHERBY said he was simply in the capacity of a scape-goat. This company was placed in London on the direct and undoubted testimony of two gentlemen, who ought to know more than anybody else, that the property would turn out in any possible way a first-rate concern, that there was an ample supply of quartz that could be crushed for years to come, and that it was in every respect a first-class mine. Upon the faith of that, by letter, by word, and in every other way, from one gentleman who was in London at the time, the company was placed in the hands of the public. He believed those assertions to be true, and that the property was a good and sound one, and had placed as many shares as he could, and recommended them to many of his clients, but they now found—at least as far as the directors told them—that they could not find any quartz that paid.

The CHAIRMAN: We do not quite say that.—Mr. HICKEY: It is almost that.

Mr. WITHERBY said they placed the company upon the faith of those in whom they placed the utmost confidence, and in the belief that it was a first-rate investment for their clients and friends, and that they would receive a large income from their shares. If any persons were to be blamed it was the Hon. Mr. Saul Samuel, and Mr. JOSEPH said when the Denison Company was going to be brought before the public he was asked to be a provisional director, but he refused unless he could personally inspect the property. He went to the mine in the society of the manager of the Oriental Bank, and the agent, who had had a great deal of personal experience in gold mining. They examined the property thoroughly, and were so perfectly satisfied it would be a very prosperous undertaking that he at once consented to allow his name to be placed as a provisional director, and numbers of his friends applied for shares. Such had always been their opinion of the property until very lately, when it became known that the property of the Fuller's Reef Company, and Mr. Munday had given a different opinion. Letters had reached him from friends largely interested in the mine stating that Mr. Munday's opinion was that now 4000, expended would prove that mine, and that the geological features of the country did not warrant the expenditure of a large sum of money, unless it was a very large sum to carry out deep sinking. It was a very difficult thing to determine the value of a property like this, for at the same time he received this letter he had placed in his hand a copy of the London Mining Journal of Sept. 6, which contained the following communication:—

"MINING IN NEW SOUTH WALES.—THE FULLER'S REEF COMPANY.—Sir: It is now fully three years since I sent you any reports of foreign mines. I am now in New South Wales, and have lately been inspecting the quartz reefs of the celebrated Hawkin's Hill, of whose richness in gold you have no doubt often heard. This chain of hills lies in the district known as the Tambarran country. The claims of individuals are all small, varying from 120 to 150 ft. along the vein, or more therof. Their yield is wonderful, but they do not, I consider, get more than half the gold, owing to their imperfect machinery. There is a new English company started to work a reef, called Fuller's Reef, in this neighbourhood. I came here purposely to see this mine, as I had been told that they had sent out some machinery with newly-patented amalgamators. On visiting the mine I found this machinery had not been brought up from Sydney. I inspected the long tunnel they had cut to drain the mine, and nothing appears to be wanting but this machinery of stampers and the new amalgamators. With their present stampers and water-power they ought to accomplish 150 tons a week, when once things are in order; but from all I hear of this new machinery they ought to double that. The quartz veins are full of gold, and should yield at least from 10 ozs. to 50 ozs. to the ton. I think this Fuller's Reef, judging from what smaller claims were yielding, is very lately, when it became known that the property of the Fuller's Reef Company, and Mr. Munday had given a different opinion. Letters had reached him from friends largely interested in the mine stating that Mr. Munday's opinion was that now 4000, expended would prove that mine, and that the geological features of the country did not warrant the expenditure of a large sum of money, unless it was a very large sum to carry out deep sinking. It was a very difficult thing to determine the value of a property like this, for at the same time he received this letter he had placed in his hand a copy of the London Mining Journal of Sept. 6, which contained the following communication:—

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Mr. H. JONES said he would call upon one of the directors and his own brother to confirm what he had stated; and Mr. Hickey, moreover, said he represented the company.

The CHAIRMAN said Mr. Hickey never represented the company, he represented the syndicate.

The CHAIRMAN, in reply to a question, stated that 30 tons of quartz from the Jewellers' Shop yielded 2 ozs. 14 dwts., and the remainder of the 366 tons came from Fuller's Reef.

Major-General HADDEN pointed out that, by unavoidable delays and obstacles, operations were not really commenced till January last, and up to the present time nothing had been said that was encouraging—indeed, the reports had been so discouraging that the directors were as astonished and disappointed as anyone else. All particulars would be laid before the general meeting, to be held on October 14, and before the committee.

A vote of thanks to the Chairman and directors closed the proceedings.

THE ARUBA ISLAND GOLD MINING COMPANY.

A special general meeting of shareholders was held on Thursday, at the offices of the company, Gresham House, Old Broad-street, "To consider a report upon the present condition of the company, and to pass such resolutions with respect thereto as the meeting may deem expedient."

The chair was occupied by Lord WILLIAM HAY.

Mr. A. MACKENZIE (the secretary) read the notice calling the meeting, and also a report which had been prepared for circulation amongst the shareholders.

The CHAIRMAN said: Gentlemen, you have heard the report which has been prepared by the directors, and also the resolution which it is proposed to submit to the meeting to-day. I do not suppose that this resolution will have taken you by surprise, because in April last, when we met here, the executive committee in their report mentioned that, in order to carry on the operations of the company effectively, they were of opinion that further funds would be needed, and it was obvious from the accounts then published that it would be impossible to go on without raising further funds. We had exhausted almost all the capital account. On that occasion the stockholders appointed, for the first time, a board of directors. They appointed five gentlemen—Mr. Hünicher, Mr. Forbes, Mr. Seymour, Mr. Lloyd, and myself, and one of the first things we undertook was the raising of further money to carry on the business of the company. On May 4 we issued a proposition to the stockholders to raise 5000*l.* at 10 per cent. interest on debentures. We had no response to that application, and from that time to this we have been endeavouring to come to some arrangement with parties willing to offer the necessary funds; but owing to various reasons, which I need not now go into in detail, we came to the conclusion that the best thing to do was to call the stockholders together, and take counsel with them with respect to raising the money. We had various offers made, some by persons willing to lease our concession, and others willing to lend money on high rates of interest; but we thought it better, although we had made an unsuccessful application to the stockholders, to again call them together, and represent to them the difficulties we were under, and also the method by which we could raise the money necessary for the development of the property. No doubt the terms on which the money is proposed to be raised are extremely onerous, but every stockholder will have an opportunity of taking a proposition, and in case of his not being able or willing to do so the directors will have it in their power to offer a balance to such persons as are willing to take it; and we have no reason to doubt that there will be any difficulty in raising any balance which may remain after the shareholders have had an opportunity of subscribing—indeed, we had a distinct offer from a gentleman who is here present to take the balance, but we thought it desirable to take counsel with the stockholders as to what was the most desirable course to be taken under the circumstances. The report is so clear and explicit that I do not think it necessary to say any more, but if any gentleman wishes to ask any question, or wishes for any further information, I shall be happy to give it myself, or someone else will be ready to do so. In conclusion he (the Chairman) moved a resolution to the effect that 10,000*l.* be raised on debentures of 50*l.* each, bearing interest at the rate of 10 per cent. per annum, repayable on Jan. 1, 1875, such debentures to entitle the holders to 50 per cent. on all the net profits derived from the company's working.

[At a later period of the meeting this resolution was somewhat modified. It will be found in its modified form further on in the report.]

Mr. SUTTON asked whether Mr. Newman, the late manager, was present at the meeting that day?—The CHAIRMAN: He was here, but I suppose he has left. He is not a shareholder.

Mr. SUTTON said that Mr. Newman was manager of this company for some time past, and he should like to ask that gentleman whether he could account for the unsatisfactory condition it was in at the present time, looking at the large capital which had been raised?

Mr. NORRIS: Is this a shareholders' meeting?—The CHAIRMAN: Yes.

Mr. NORRIS: Has any gentleman not a shareholder a right to be present in the room?—The CHAIRMAN: He has no right to be present.

Mr. NORRIS: It is irregular. The CHAIRMAN said no doubt it was irregular, and could only be done with the sanction of the meeting.

Mr. SUTTON said that, inasmuch as Mr. Newman had the management of the property for some time, he should certainly have liked, if he had been present, to ask him one or two questions.

The CHAIRMAN said that if any shareholder objected to Mr. Newman being present he could do so.—Mr. NORRIS said he did not object; he simply drew attention to the fact that Mr. Newman was not a shareholder.

With the sanction of the shareholders, Mr. Newman was then requested to enter the room, and Mr. SUTTON said that, as an old stockholder, he should like to hear some reason assigned for the depressed state in which the concern now was. He would ask Mr. Newman whether he found the property as valuable as was represented?—Mr. NEWMAN: Certainly not, as far as my judgment goes.

Mr. SUTTON: Do you believe there is a good supply of gold in the shape of quartz, or any other form?—Mr. NEWMAN: I believe there is a fair supply of gold to be obtained from the mine.

Mr. SUTTON: Then how was it you failed to get it?—Mr. NEWMAN said that he was labouring under difficulties, especially with respect to the machinery, which had never been really finished.

Mr. SUTTON said someone must be to blame for the state in which the company now stood, and he should like to know who it was? It was a fair question, how such an unsatisfactory state of things had arisen? He read Mr. Frank Taylor's report with great care and caution before entering into the concern. He had been connected with the property for fifteen or sixteen years, and he certainly was led to believe there was some valuable stuff on the property. He believed Mr. Lloyd brought over several hundredweights of ore, which, if his memory served him right, gave a result of about 20 ozs. of gold to the ton.

Mr. LLOYD: Some that I brought over gave a great deal more.

Mr. SUTTON: But the whole gave an average of about 20 ozs. of gold to the ton?—Mr. LLOYD: Yes.

Mr. SUTTON said such being the case, he should like to know how it was that better results had not been arrived at? It was a point which required some explanation. Mr. Newman evidently did not think very much of the property.

Mr. NEWMAN: I beg your pardon; I consider the property of great value.

Mr. SUTTON said he was glad to hear that such was the case. He believed the report which was issued in April last had greatly damaged the company. He was perfectly amazed, as anyone must have been who had not had the good fortune to have his share given him.

The CHAIRMAN: There are not many of that class I think. The cash payment was 50,000*l.*; you could only get B shares by paying cash for the A shares.

Mr. SUTTON: But there is the unfortunate fact that the property which you have has turned out badly.

Mr. NORRIS: Had we not better let by-gones be by-gones? (Hear, hear.) I believed in the property always, and I believe in it now. If well managed and properly developed it will turn out a good property. (Hear, hear.)

Mr. SUTTON: Certainly there is no good in referring to them, but they should be regarded rather as lessons to be avoided than as examples to be followed.

Mr. NORRIS said he quite agreed with that.

Mr. HARBTON said he represented a large interest in the company, and it appeared to him to be right that the stockholders should be entitled to take up their *pro rata* proportion, and those debentures which were not taken up ought to be offered to those stockholders who were willing to take more than their *pro rata* proportion; but, as he understood the resolution, the directors did not pledge themselves to offer such debentures as were not taken up to those stockholders who were willing to take them. If a modification to that effect were introduced he thought there was nothing to be objected to in the resolution. The first offer should be to the present stockholders, and if there were any debentures refused by some of the present stockholders then they should be offered to those shareholders who were willing to take them. Of course, it did not matter whether the bonus was 50 per cent., or even more, so long as the present stockholders got it.

The CHAIRMAN said it could be done if it was thought desirable. A circular could be sent round asking the stockholders whether they would take their proportion, and if they answered no the debentures could be offered to those stockholders who were willing to take them?

Mr. SUTTON asked whether each gentleman was obliged to take the proportion to which he was entitled—could he not apply for less?

The CHAIRMAN: No; he can apply for more, but not for less.

Mr. HARBTON said his object was to elicit from the directors that they would give such stockholders as were willing to do so any opportunity of taking such of the debentures which were not taken up by stockholders who were entitled to them. He thought the time allowed for the American shareholders was quite sufficient.

A SHAREHOLDER asked whether the amount would be paid all at once, or part on application and part on allotment?

The CHAIRMAN said that as the amount was so small it was better it should all be paid up at once.

Mr. NORRIS asked whether it would not be better to alter the resolution, so as to give the debentures absolutely to anyone who would take them all at once, or at any rate give the directors power, within one week after the time allowed for the option for taking, to allot the debentures to anyone ready to take them.

Mr. BURGHEIM pointed out if the debentures were for 50*l.* the *pro rata* proportion would be a 50*l.* debenture to every 2500*l.* of stock, and anyone holding less than 2500*l.* would not be entitled to an allotment. He, therefore, suggested that the debentures should be for smaller amounts—say, 20*l.* or 10*l.*, which would enable the smaller stockholders to take up their proportion. (Hear, hear.)

The CHAIRMAN: Well, shall we say in sums of 10*l.*? Will you pronounce an opinion as to whether the debentures shall be 10*l.* or 50*l.*?

A show of hands was taken, and it was carried that the debentures should be for 10*l.* each, which would give the smaller stockholders an opportunity of taking their proportion.

General SARGENT asked whether it would not be possible to raise the money without any bonus? He should be ready to lend the company 1500*l.* at 10 per cent. without any bonus provided the other shareholders would lend the balance. He had heard the remark that the terms were rather high, and he proposed that

those who were able to do so should put their hands in their pockets and furnish the money at a lower rate. Another gentleman near him would take 1000*l.*

A SHAREHOLDER said he did not see the objection to the high bonus if all the debentures were taken by the stockholders; it mattered not whether they paid 50 per cent. or 500 per cent. bonus.

Gen. SARGENT said the only question was as to who was going to have the balance which was not taken up by the stockholders. He himself had made an offer to take the whole amount of 10,000*l.*, and he did so because he thought it better that the company should be in some position to know whether they were on their feet or not. He considered that if his proposition was accepted to the company would be in a better position than if they went before the stockholders and the stockholders did not respond. Of course, if the stockholders did not respond it would then be hard to find anyone outside them who would respond; but if they had a responsible gentleman who would guarantee all the debentures being taken then they knew they had their capital, and could commence work at once, and need not wait. (Hear, hear.)

A SHAREHOLDER said he would propose that any debentures which the stockholders did not take up should be offered to Gen. Sargent.

A SHAREHOLDER seconded the resolution.

Mr. BOSMAN thought they would not be justified in refusing the offer of Gen. Sargent to take all the debentures which were not allotted to the stockholders.

A SHAREHOLDER: It is an oasis in the history of such undertakings to find a gentleman of that spirit coming forward, and making a proposition to take the debentures after the whole of the stockholders had been offered a *pro rata* allotment.

Some discussion then ensued as to the exact form which the resolution should take, and eventually

The CHAIRMAN proposed the resolution in the following form—"Resolved, that the sum of 10,000*l.* be raised in the following manner:—The debentures of the company be issued in sums of 10*l.* each, payable to bearer, bearing interest at 10 per cent. per annum, payable annually at the company's bankers in London, the principal being repayable on January 1, 1875, such debentures to entitle the holders thereof to 50 per cent. of all the net profits that may be derived by the company from working gold, or phosphate of lime, or any other mineral, after deducting annually the working expenses of the company, for the term of three years from January 1, 1875, such debentures to be allotted *pro rata* to all the shareholders of the company, and that 20 days notice be given to all European shareholders, and 40 days notice to all American shareholders; and if such debentures are not paid upon within such time the allotment will be cancelled, and upon the cancellation of the allotment of the above that the remainder of the debentures be issued to Mr. G. B. Sargent, on his paying for the same as required by the directors."

Mr. REMINGTON seconded the resolution, which was put to the meeting and carried unanimously.

The CHAIRMAN said there was one other item of business. He had mentioned in the few words which he had addressed to the shareholders, that the last committee had appointed certain gentlemen as directors. Since that time the directors had found it necessary to add to their number, and it was desirable that the shareholders confirm the appointment. The gentlemen who had been elected since the meeting in April were Gen. G. B. Sargent and Mr. Samuel Remington; he had, therefore, to move that the appointments of those two gentlemen as directors be confirmed.—The resolution was seconded by Mr. NORRIS, and carried.

The CHAIRMAN said that, perhaps, it would be interesting to the shareholders to know the result of the working of the property for the period between June 18 and Aug. 5 last. The directors had received advices that 150 ozs. had been obtained from 63½ tons of quartz, which, at 3*l.* 10*s.* per ounce, would give about 500*l.* The working cost was nothing, but the indication of the office expenses in London, amounted together to 31*l.*, leaving a profit of about 200*l.* So far this was satisfactory.—A vote of thanks to the Chairman closed the proceedings.

NANT-Y-RONEN MINING COMPANY.

A meeting of shareholders in this mine was held at the Freemason's Tavern, Great Queen-street, on Monday.

Mr. EDMUND FIELDING in the chair.

Mr. MAY (the secretary) read the notice convening the meeting, and a very favourable report of the mine from the manager, Capt. A. Francis.

The CHAIRMAN said the report just read would show to the proprietors that ultimately there was a good prospect of the mine becoming a profitable undertaking. The directors regarded the report as very satisfactory. He believed, from the operations of other mines in North Wales, that they might expect a fair dividend at a comparatively small scale. He referred to the enormous success of some mines in Cornwall and Devonshire as illustrating how mines at one time unprofitable suddenly became of enormous value. He hoped they might some day discover that the same would happen to Nant-y-Ronen. He reminded the shareholders that there was no promotion money paid to anyone. The mine being on the side of a hill was favourably situated for the supply of water in a sufficient quantity for their wants. The directors had thought it right to anticipate matters by the purchase of a water-wheel and a small pumping-engine. As far as the operations had gone at present, lead had been found in paying quantities, and the quantity would no doubt increase. He, therefore, congratulated the proprietors on being the owners of a property so prospectively valuable. Three of the directors had visited the property, and would be prepared to give the meeting their opinions upon it. He pledged himself and the board that they had every disposition to work the mine economically and fairly, and he trusted they would be able to come forward by-and-by with dividends which would make the shareholders glad that they had entered upon an enterprise of such a character. He did not, however, wish to deceive the proprietors. It was possible in this, as in all other mining operations, that they might receive nothing, but the indication, he repeated, were good, and promised the realisation of a large amount of revenue.

Mr. T. A. THOMPSON informed the meeting that he had been down with the other directors to the mine. He first visited the West Ronen Mine, and found that they had sunk about 13 or 15 fms. He produced some specimens of lead ore which had been taken out of the shaft with a common pick. The underground works were being proceeded with, and adit levels driven, so as to intersect the lode running from the other mine, the West Nant-y-Ronen. Water was percolating through the workings, and the captain believed this to be a good indication that the metal was not far off. He was quite satisfied that the ore was there, and only required the appliances to get it out. He reminded the proprietors that this was not a bubble company. No money had been taken from the public. The shares taken up had been fully paid. He was satisfied there would be a sufficient return. He would say, however, "Do not put down all your money on the mine, but put as much as you can afford to spare," because, although there was always risk in an undertaking of this kind, still he believed that, in this case, they would get ample return for the capital invested.

Mr. BOWES said that he had declined to have anything to do with the mine until he had seen it for himself and formed his own judgment upon it. He, therefore, went down and inspected the property. He was not satisfied even then with an outward inspection, but entered the workings. He had now no doubt that the report of Capt. Francis would turn out correct. Mr. BOWES then proceeded to describe the working he saw going on. He added that enough lead had already been raised by men who had had the thing in hand at first to show that the ore really existed. As far as his opinion was worth anything, he really believed that they had come into possession of a very valuable property, and he was perfectly satisfied it would ultimately turn out a success.

Mr. VILLARS said that he was satisfied that all the statements made by his brother directors were correct representations of the working going on in the mine, and he quite endorsed the opinions of Mr. Thompson and Mr. BOWES.

Mr. COURTS stated that though he had not visited the mine he was satisfied by the reports which had been made by the captain and his brother directors that capitalists might embark with confidence in this undertaking. He was sorry to find that there were so few shareholders present, but that, probably, indicated confidence in the directors. He knew some of the shareholders had the very greatest confidence that the undertaking would be successful.

Mr. G. A. THOMPSON said he was not accustomed to public speaking, but he was quite ready to do so on this occasion, and he was glad to see that, for he fully believed the mine was good one, and could be worked economically at the present time.

The CHAIRMAN then invited discussion, on which several questions were put by Mr. Collins, and answered by Capt. Francis. There seemed to be some difference of opinion between the two as to details of working.

Mr. MAY stated that he might probably be considered as the first who introduced the mine to the notice of the directors. Some three years ago his attention was called to it on account of some workmen having been engaged during their leisure hours in collecting the ore with the scanty materials at their command until, their appliances failing them, they could go on no longer. After a good deal of correspondence, he made an underground inspection of the mine, and he came to the conclusion that, from the operations which had already been carried out at the mine, there was every prospect of a successful future. He added that up to the present time he had not received a shilling of benefit from his connection with the undertaking, but he looked forward to the future for his reward. He reminded the proprietors of the important fact that none of their directors, with the exception of the Chairman, had ever been interested in mines before, and they were determined that no money should be uselessly thrown away. Some delays had probably occurred, but they were inevitable in undertakings of this character. He congratulated himself to the vendor, provided for all reasonable contingencies, and work the mine on a scale large enough for the present purpose. Of course, as the business increased the capital of the company would have to be enlarged, but this he anticipated would be accomplished out of the profits of working. It was proposed to limit the first issue of shares to 1000, and that the original shareholders should have the option of purchasing at par before throwing the other 1000 shares on the market. He also suggested that the shares should be kept in as few hands as possible.

Mr. ROE (the vendor) said that the secretary had very much underrated the case, both as to the probable amount of business to be done and the profits realised. He had worked his patent successfully in the United States, also since his arrival in Britain, and, judging from the amount of business he had done, with but very

limited means, he repeated that the secretary had very much underrated their prospects.

Mr. ELLIOTT (of Messrs. Sutton and Elliott), solicitor to the company, then read the draft of Memorandum and Articles of Association, which were highly satisfactory to the meeting. He observed that as this was a *bona fide* undertaking he had bestowed more than usual care in drawing up the Memorandum and Articles, and that he had advised the promoter to call the present meeting and lay before the whole cost before the gentlemen who were likely to invest their money. Small as the amount was, and to obtain an approval of the venture prior to offering a single share for sale.

On the motion of Mr. MELVILLE, seconded by Mr. R. COOKE, the Articles were unanimously adopted. The law clerk in conjunction with the secretary were instructed to prepare the required documents and proceed at once with the registration of the company. A considerable number of shares were taken up in the room, and a vote of thanks to the Chairman terminated the proceedings.

'For remainder of Meetings see to-day's Journal.'

TREATING TIN AND TERNE PLATES.—According to the invention of Messrs. HOPKINS, REES, and THOMAS, the ordinary prepared plates are arranged in a closed vessel. Steam or hot air is then injected through a pipe or casing, in which a series of apertures or nozzles are arranged at an angle to the surface of the plate, and through the said apertures steam or hot air is caused to issue, and spread itself as much as possible over and through the entire body of liquor, and also between the plates, effecting a vibration of the same, whereby the liquor becomes heated, and the plate prepared for the annealing operation.

IMPROVEMENTS IN STEAM BOILERS.—Amongst other things Mr. HENRY WILKE, of Plaisfort, proposes to employ inclined water tubes below a main or tubular boiler, and through furnace and combustion chamber with up tubes rising from the inclined tubes in and through the said chamber; steam spaces in the up tubes in communication with each other and with steam space of boiler; so that within its length flame cannot play on shell of main boiler; sides of furnace and sides, top, and back of combustion chamber formed of iron cast with fire-bricks, or otherwise wholly or partly of water chambers, which may be used as feed heaters open to the atmosphere, or closed, and a safety valve applied; and other valves as required.

MELTING AN EXTRAORDINARY MASS OF PLATINUM.—The largest mass of the alloy of platinum and iridium that has been melted at one operation was recently fused at Paris in the presence of the Executive Committee of the National Metric Commission. This mass of the alloy in question was intended to be run into a mould of such shape as to afford eventually a number of new lines of standard metres, which will all be cut from this single ingot, and it is expected that the surplus metal will even then be sufficient to make all the required standard weights or kilogrammes, and a number of end standard metres. The weight of the great ingot in question was 550 lbs. avoirdupois, its length about 4½ in., its breadth 6 in., depth 2½ in. The process of melting was facilitated by first dividing the material into small pieces; a small quantity was then melted, and to it were gradually added the remaining portions in the form of long thin bars. The heat required was obtained by means of an oxyhydrogen furnace fed by six gas tubes, each about 1 in. in diameter, and supplying the ordinary illuminating gas, and another set of tubes which furnished the requisite proportion of oxygen. The latter gas was made on the premises and stored in a large gasometer. For obtaining a sufficient blast, the power of a 15-horse steam-engine was employed. The time actually occupied in melting the entire mass of 550 lbs. was about four and three minutes, of which the first 40 minutes were occupied in melting the first half of the material.

COPPER ORES.

Sampled Sept. 2, and sold at the Royal Hotel, Truro, Sept. 17.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols.	98	£3 19 0	Marble Valley	61	£2 14 6
ditto	90	2 10 0	ditto	60	4 10 6
ditto	87	4 4 0	ditto	30	0 10 0
ditto	85	1 7 0	Brookwood	96	2 15 0
ditto	84	4 2 6	ditto	52	2 0 0
ditto	77	6 8 6	ditto	46	3 2 6
ditto	70	4 15 6	ditto	42	6 12 6
ditto	69	3 10 0	ditto	34	6 18 6
ditto	68	4 0 6	ditto	26	11 2 6
ditto	60	2 9 6	Glasgow Caradon	80	4 0 0
ditto	57	3 7 0	ditto	67	5 9 0
ditto	28	6 7 0	ditto	53	5 1 6
ditto	18	4 12 6	Gunnislake (Clitters)	60	7 18 6
Hingston Down	94	2 12 0	ditto	56	6 0 6
ditto	90	2 9 0	ditto	55	4 11 6
ditto	88	2 12 0	Wheal Crebor	65	3 10 6
ditto	80	2 2 0	ditto	60	3 18 6
ditto	79	2 10 0	ditto	20	10 3 6
ditto	74	2 10 0	East Caradon	60	3 2 6
South Caradon	89	4 13 6	ditto	60	2 0 0
ditto	86	5 15 6	ditto	20	12 16 6
ditto	57	6 9 6	New Pembroke	118	2 1 6
ditto	53	6 9 6	Wheal Russell	70	2 8 0
ditto	49	12 10 0	ditto	24	3 17 6
ditto	43	7 7 0	West Maria & Fortescue	50	2 3 6
ditto	33	4 9 0	ditto	40	7 17 6
Marke Valley	92	2 11 6	Belstone	16	4 11 6
ditto	77	4 2 0			

TOTAL PRODUCE.

Devon Great Con.	983	£2325 0 6	Wheal Crebor	145	£2 06 2 6
Hingston Down	500	1290 2 0	East Caradon	145	843 2 6
South Caradon	410	2732 12 6	New Pembroke	118	1070 17 0
Marke Valley	320	1021 16 6	Wheal Russell	103	282 0 0
Brookwood	296	1355 19 0	West Maria, &c.	90	419 0 0
Glasgow Caradon	255	1292 3 6	Belstone	16	72 16 0
Gunnislake (Clit.)	171	1063 8 0			

Average standard £105 0 0 | Average produce 6%
Average price per ton 3532 | Quantity of fine copper 24 tons 11 cwt.

Quantity of ore 3532 | Amount of money £15,854 15 0
LAST SALE.—Average standard £104 6 0 | Average produce 7%
Standard of corresponding sale last month, £101 6 0.—Produce, 7%.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons	419	£2689 10 0
Grenfell and Sons	305	1642 1 6
Nevill, Druce, and Co.	605	2082 10 0
Williams, Foster, and Co.	681½	3111 13 6
Mason and Elkington	627	2247 15 0
Copper Miners' Company	422½	2154 5 0
Charles Lambert	164	913 18 0
Newton, Keates, and Co.	166	913 18 0
Sweetland, Tuttle, and Co.	172½	420 4 0
Total	3532	£15,854 15 0

NO SALE ON Thursday last, September 24.
Copper Ores for sale on Thursday next, at Tabb's Hotel, Redruth.—Mines and parcels.—Crenver and Wheal Abraham 450.—West Wheal Tolgus 375.—Carn Brea 245.—West Wheal Seta 140.—East Wheal Basset 125.—Wheal Crilly 84.—Wheal Bassett 69.—East Pool 60.—Aulic United 60.—South Dolcoath 44.—Wheal Seta 36.—South Carn Brea 33.—South Wheal Frances 13.—Wheal Buller 7.—Pedra-drea United 6.—South Tolgarn 5.—Wheal Dolcoath 5.—Total, 1780 tons.

COPPER ORES.

Sampled September 2, and sold at Swansea, September 22.

Sampled September 2, and sold at Swansea, September 2.				Sampled September 2, and sold at Swansea, September 2.			
Mines.	Tons.	Produce.	Price.	Mines.	Tons.	Produce.	Price.
Berehaven	103	7½	£5 5 6	Copper Matt	117	9½	£3 14 6
ditto	102	7½	5 8 6	ditto	13	12½	13 0 0
ditto	103	8½	5 18 0	Copper Ore	32	17	7 2 0
ditto	80	8½	5 17 0	Knockmahon	120	8½	7 2 0
ditto	100	7½	5 15 0	ditto	53	3½	1 15 0
Union Ore	129	10	6 10 0	Canadian Ore	74	5½	3 13 6
ditto	121	8	2 7 0	ditto	73	5½	3 13 6
ditto	120	4½	2 6 0	Del Soto	40	24½	21 1 6
ditto	100	12	7 6 0	ditto	33	27½	9 14 6
Cape Ore	85	26½	30 11 6	Burrowing	75	13½	33 11 6
ditto	85	26½	20 11 6	ditto	10	9½	6 0 0
ditto	35	37½	30 18 6	ditto	14	21½	16 11 6
ditto	68	25	19 6 0	ditto	12	28½	22 3 6
ditto	68	25	19 11 0	ditto	12	28½	22 3 6
ditto	67	25	19 7 0	Precipitate	6	62	47 13 6
West Canada	67	18½	14 10 0	ditto	9	15½	29 2 6
ditto	66	18½	14 9 6	Copper Ore	11	24½	29 2 6
ditto	66	18½	14 9 6	Cop. Waste	7	10½	6 5 6

PRICE'S "RETORT FURNACES."

This invention, which has lately been introduced to the iron trade, merits attention in the all-important matter of economising fuel. The merits claimed for it may be summarised as diminishing the consumption of fuel in an important degree, and also decreasing the waste from oxidation, while giving greater durability to the material of which the furnaces are constructed. The retort furnaces are designed to improve the process of combustion, by eradicating one of its worst evils—the excess of free air in the furnace—and this is effected by utilising its hitherto wasted products to this end. For nearly 12 months experiments have been in operation at Woolwich Arsenal. During the first four months of the trial the average consumption of fuel in puddling was 14 cwt. to the ton, as against 24 cwt. in the ordinary furnaces. But during the subsequent four months that remained of what rather unexpectedly proved to be the life of the first puddling chamber, and after a wider range of experience, the average consumption of fuel to 1 ton of iron puddled was 12½ cwt. Since the re-constructing of the puddling chamber, which had been worn out by eight months of uninterrupted work, and the puddling of 350 tons of iron, the consumption has been as low as 11½ cwt. of coal per ton of iron puddled, and the general average, including all contingencies from lighting up to leaving work, can now be maintained at 12 cwt. per ton, or about 50 per cent. net gain of fuel over the average of the common furnace. There are some 8000 puddling-furnaces in Great Britain, with probably an equal number of re-heating and other air furnaces of a similar type, scattered over the various industries connected with glass, iron, and other metals. The average weekly consumption of the furnaces used in the manufacture of iron may be safely taken at 15 tons per week, and deducting 20 per cent. for idle works, &c., there is a yearly consumption of 10,000,000 tons of coal in the reverberatory furnaces now in common use throughout the kingdom, 5,000,000 tons of which it is now demonstrated are wasted. A method which professes to guarantee so vast a saving in that which is the raw material of our manufacturing renown and commercial pre-eminence should not be ignored. These new furnaces are now daily at work in the Royal Gun Factories, and they can therefore, be easily investigated. Their working has been followed with such vigilance that the fuel, charges, and yield have been weighed with the greatest care. It appears that from first to last 450 tons of iron have been puddled during the trial, 359 tons of which was the turn-out of the first puddling chamber before its renewal, and this yield attests the much greater durability of the fire-brick under this improved mode of combustion. The waste of iron and fettling in the furnace has also, it is stated, sensibly diminished, the yield of iron being within 2 per cent. of the charge. Taking un-screened coal as the fuel, and 23 cwt. of coal as the average of the ordinary puddling, the net gains of the new furnace may be set down as follows:—½ ton of coal per ton of iron saved; 2 cwt. of fettling saved; 2½ per cent. of puddled bar increase in yield. The results, in so far as fuel and oxidation compare, are strikingly confirmed by the "retort" re-heating furnace, the weekly saving of coal in which is rather over 45 per cent., 4½ tons of coal being used to the heating of 1 ton of iron, with oxidation of the charge not only reduced but more thoroughly held in check. Perhaps the most prodigal source of loss in iron making is that by oxidation, which in our existing furnaces fluctuates anywhere between 5 and 15 per cent., according to the care and discretion of the furnaceman. To keep this waste from rust within narrower and more sharply defined limits would alone be a momentous reform. In the "retort" furnace this is attained by gasifying and heating the fuel prior to combustion. By this method uniform action is attained, and fluctuations, with their waste, are averted.

TREATMENT OF LEAD BY STEAM.

In place of (says the author) stirring the molten lead either by hand or by steam power, steam is introduced, and causes a violent and continued boiling of the whole mass of metal in fusion, most favourable to the separation of the silver from the lead, and the purification of the latter. The above action is, of course, purely mechanical. As to its chemical action, although feeble, on account of its being in the presence of metals which do not become decomposed at the temperature at which the operations are carried on—that is to say, about 330° Cent.—it is sensibly felt, for the lead undergoes a refining action independent of that which results from its fusion at a dull-red heat previous to crystallisation, so much so that all previous refining is dispensed with in the case of moderately hard lead, though not when the metal is very hard.

If the chemical action of the steam were nil the purity of the lead produced without previous refining could only be attributed to the series of partial refinings to which the lead is submitted, by the fact of a great number of re-meltings at a dull-red heat; but a fact which tends to show that the steam exercises a chemical action is, that the oxides which are produced are first yellowish and earthy, but as the operation proceeds become black, and heavily charged with copper, a circumstance which is not produced in the boilers of the ordinary system, in spite of the most vigorous stirring. Towards the end of the operation, while the steam is still in action, in the liquid portion in which are concentrated the silver, copper, antimony, and arsenic, the lead is found to have been deprived of the copper which it contained. The antimony is gradually eliminated by the oxidation caused by the air during the re-meltings; soft lead gives even more oxide than hard lead containing more antimony, which proves that the latter oxidises first, and preserves the lead from oxidation.

The lead produced by the steam method is perfectly soft, and besides a suppression of a special operation of refining, the employment of steam offers many advantages, as the saving of the cost of previous purification, reduction of oxidation of the lead, and consequently of waste. The economy of time and labour is due to the rapidity of the operation, the smaller number of hands required, while superior workmen are more necessary in the old system than in the present, and also more space.

When the lead is to be dealt with contains not more than one-half per cent. of antimony it may be operated upon by the new system directly, and the purification becomes reduced to that of the rich dross, and the expense to about one-fifth of that by the ordinary mode. In the case of lead which contains a larger amount of antimony, previous purification is necessary, but this operation need not be carried so far as in the ordinary process; it may be arrested when only one-half per cent. of antimony remains in the lead. The arsenic having the greatest tendency to take the place of the silver, it has been proposed to effect the purification by means of soda.

The apparatus employed in the steam system consists of an upper and lower boiler, each with its own furnace, the former for melting of the lead and separating the silver will contain about 9 or 10 tons, and the lower, which is for the crystallisation, from 15 to 16 tons. A stage erected around the lower boiler allows the workmen to watch the operation, and remove the oxides. The metal is run from the upper to the lower vessel through tubes fitted with friction valves, moved by means of a lever; and in order to prevent the lead from penetrating into the steamway-pipe a valve-cock is adopted.

The lead having been melted in the upper boiler is skimmed and run off into the lower one, and at that moment a small jet of steam is let in to effect the mixture of the crystals of the previous operation with the lead in fusion. A small stream of water thrown upon the surface of the lead at the commencement of the operations facilitates the formation of the crystals. The steam is introduced through a boiler close at hand, under the pressure of three atmospheres, through a lateral tube near the bottom of the lower boiler, and is distributed uniformly by means of a horizontal disc of cast-iron placed over the nozzle of the steam-pipe at the centre of the lower part of the boiler. The boiler is fitted with a cover in segments, which are opened alternatively every five or six minutes, when a workman detaches such lead as has been flung by the action of the escaping steam against the upper sides of the boiler and adhered there. Beneath the lower boiler are two small supplementary furnaces, which bring up the discharge tubes to the proper temperature, and are lighted just previous to the drawing off.

The workmen remove the oxides once only during the operation, before the introduction of the steam, but the top of the boiler is fitted with a chimney, which places it in communication with the condensation chambers, where the steam arrives, carrying with it a part of the oxides, which are deposited in a pasty state.

The lead is run off when about two-thirds are in the state of crystals, the lead is received in conical vessels sunk in the ground, the metal ways being furnished with gratings to keep back any crystals. Two pigs of 2½ tons each are produced at each operation. The pigs obtained from successive operations are lifted by a steam crane, and arranged according to their quality, and those of superior quality are collected together until the quantity is large enough to commence a new series of operations, starting from the point reached in the former. When the lower boiler is run off, the lead which has been melted in the upper one during the crystallisation is turned into the former, and the operation is repeated.

When merchant lead, or complementary lead, are in the state of crystals, these are melted by lighting the furnace under the lower boiler, and the lead is run off into ingots, placed in a half circle, and filled by means of a gutter moving upon a pivot.

The word operation is applied to the total of the work done between the drawing off the lead from the upper boiler into the lower, and the running of the enriched lead into the ingots. The time of an operation is one hour and a half. The running of the merchant, or complementary, lead counts for two operations, because the time necessary for the melting of the crystals in the lower boiler is nearly double that occupied by the crystallisation. The number of operations representing this running is, for lead of 125 grammes, 25 to 30 per cent. of the number of crystallisations. The number of operations is on an average 13 in 24 hours, but it sometimes amounts to 16 or 17, according to the nature of the fuel, the draught, and the proximity of the steam-boiler; it varies also with the tenure. An apparatus dealing with lead of 123 grammes produces 6 to 7 tons of merchant lead per 24 hours.—M. ROZAU: "La Metallurgie."—*Iron*.

THE BARROW SHIPBUILDING COMPANY'S WORKS.

IRON AND STEEL INSTITUTE—THE EXCURSIONS.

The shipbuilding works of the Barrow Company is not the least remarkable of the many new creations in and around that town. Few works can compare with them in respect of arrangement and equipment, and it is, therefore, natural that they should be inspected with interest and admiration by the members of the Iron and Steel Institute on the occasion of their recent visit to Barrow. The locale of the works is old Barrow Island, a place on which until four or five years ago not a single habitation, except an old farmhouse, was to be seen. They are bounded on one side by the Walney Channel, and on the other by the Devonshire Docks, so that on both sides they have the inestimable advantage of water communication. The area of the works extend to some 55 acres of ground, a large part of which is covered with buildings. The shipbuilding works are divided from the engineering works by a highway called the Island Road, and underneath this thoroughfare a subway connects the one establishment with the other, thus affording the means of carrying wagons and locomotives between the two. A spacious gateway provides an entrance to the shipbuilding yard, the buildings of which are so constructed as to form a spacious quadrangle. On the left hand side of the main entrance the offices of the company are situated, and from them access is obtained to the large draughting loft, which, unlike the draughting lofts on the Clyde and elsewhere, is a one-storey building, having a glass roof, from which an abundance of light is thrown on the floor below, where the vessels are drawn out at full length previous to being put together. The joiners' shops and sawmill are a continuation and completion of the block of buildings in which the draughting loft forms the principal feature. The whole length of the building is 500 feet by 120 feet in width. This building, like all the others about the place, is constructed of stone brought from the quarries in the neighbourhood, and a series of spacious doorways lead out of the joinery and draughting loft into the yard, where lines of railway give direct access to all the other departments—indeed, it is a fair matter for doubt whether there is an establishment in the country where the railway facilities are more complete. The machinery shed is at right angles to the joiners' shops and saw-mills, and contains a lot of splendid tools, such as slotting, punching, drilling, and rivetting machines, the most of them being supplied by Shanks, of Johnstone. This building is 360 ft. in length by 125 ft. in width, and is open on both sides, as well as at one of the ends. The roof is supported on iron columns and girders, put together in the strongest and most substantial manner.

Parallel with the draughting-loft and joinery, on the other side of the quadrangle, are situated the smiths' shops and the furnace sheds. Something like 50 smiths' fires are here in operation. Godman's patent heat-restoring gas furnace is used for re-heating. This furnace, which has frequently before been alluded to, and more or less fully described, in the columns of the *Mining Journal*, is largely used in Scotland for shipbuilding purposes, many of the Clyde shipbuilders having adopted it in preference to any other. It is found at Barrow, as elsewhere, to yield very excellent results, the economy of fuel being about a third, and sometimes more, below that of the ordinary reverberatory furnace; but the principle of the heat-restorer, which was first brought under the attention of Mr. Godman by the late Mr. Stirling, is sometimes found too delicate, and liable to get out of repair, to adapt the furnace for ordinary use. The range of buildings parallel to the joinery is 300 ft. in length by 120 ft. in width, and the stores and offices, which complete the quadrangle, are 50 ft. in width by 120 ft. in length. In the centre of the quadrangle there are depots for the storage of coal. Each depot contains coal for a particular department of the works, there being one depot for the smithy, another for the joinery, a third for the machinery shed, and so on. Beyond the latter department are seen the slips on which the vessels are built. Abutting on the Walney Channel, the slips are admirably adapted for the purposes of a launch, and it is hardly possible to conceive of any impediment to the successful launching of a vessel consequent either upon the failure of sufficient water or the narrowness of the channel. Vessels of 4000 tons burden have been launched here for the Ducal line of steamers—a line that had its origin, and still has its home, in Barrow—that has been promoted by, and named in honour of, the Dukes of Buccleugh and Devonshire, and that promises to attain the dimensions and popularity of some of the best lines frequenting the port of Liverpool. At the present time the company have four vessels on the stocks, including the *Anchora*, a steamer 408 ft. in length, and one of the heaviest built for the Messrs. Handyside and Henderson. One of the other vessels on the stocks is to be fitted up with Howard's patent boiler, by way of experiment. This, we believe, will be the first time that one of these boilers will be used for marine purposes, and the experiment is not less bold than promising. When completed this vessel will be tested against a sister ship fitted with the ordinary boiler, and if the result should be favourable to the newer form of boiler we may look for something approaching to a revolution in the construction of marine boilers. One thing in favour of the Howard boiler is already well known. It is much safer than the one commonly used, and although the steamers that ply from English ports are not so liable to "bust their boilers" as those on the Mississippi and the Delaware, this is a consideration of some moment. The Barrow Shipbuilding Company, we may add, have fitted up a department specially for the manufacture of the Howard boiler, and they have employed Mr. David Joy, late of Middlesbrough, and an ex-president of the Cleveland Institution of Engineers, to undertake its supervision. The company have a dozen slips, being more than any firm on the Clyde, Wear, or Tyne, with two, or at the most three, exceptions, and some of them are large enough to admit of two vessels being built at one time, but it is always possible to have 12 large vessels on the stocks at once.

The engineering works of the Barrow Shipbuilding Company, on the other side of Island Road, are not less complete and efficient than the shipbuilding works proper. The fitting, turning, and erecting shops comprise a building over 400 ft. in length by 150 ft. wide. Another adjacent block, containing the iron foundry and the boiler-

shed, is 250 ft. in length by about the same width. It was intended to have had these departments in fine bays or roofs, but owing to the exigencies of the site, which is in the form of an oblong, this design could not be carried out. A third building, attached to the engineering works, contains the iron smiths' shop, the brass smiths' shop, and the copper smiths' shop, and is 250 ft. in length by 190 ft. in width. The engineering works have the advantage of a 100-ton crane built in connection with the Devonshire Docks, and by means of which the machinery can be moved about with the greatest facility.

The Barrow shipbuilding works were commenced in 1871, and since that time they have undertaken the construction of 25 vessels, most of them being of exceptionally heavy tonnage; the Duke of Devonshire, chairman of the company. Most of the ship and boiler plates used in the yard are brought from either Consett or Scotland, so that the company stand at some disadvantage as compared with the shipbuilding firms on the Clyde and the Wear, who are nearer to the sources of supply, and have, consequently, less to pay for the freight of material. This advantage, however, appears to be more than compensated for by the splendid situation of the works and their superior organisation and arrangement.

RUSSIAN COAL FIELDS.—In the latest volume of consular reports, recently published, it is stated that the prospects of the Russian coal fields are very good. The Azoff ports especially appear to have a brilliant future before them, for the coal beds underlie the steppe along the northern shore of the Azoff, and the coast towns will naturally benefit to a large extent from the systematic efforts which are now being made to render the mineral wealth of the country productive. Since 1870 most careful examinations of the steppe have been made, and have established the fact that extensive seams of superior steam coal, coking coal, and household coal exist in the neighbourhood of Mariopol; and indications of similar coal have been discovered in the district embraced by the Dnieper and the Crimea. The last-named beds have not been accurately or sufficiently estimated; but the seams, which are well known, are able to support a large section of the population, and to return excellent profits to those who engage in working them. Capitalists have, therefore, come forward in considerable numbers, and at present there is quite a mania for shaft sinking, some of the more prudent or wealthy proprietors working the seams found under their own properties, while others rent theirs to companies. The coal lies very near the surface, the intervening strata being easily penetrated, and the chief difficulty consists in obtaining hands to carry on the operations, for the population is very sparse, and agriculture fully occupies the people. Therefore, the pleasanter duties of the field are preferred, and it is only when agricultural work is slack that bands of men can be found to go down the pits. Such unskilled labour is unprofitable. There is much waste in digging out the coal, and the work is carried on in a slovenly fashion. The material, although intrinsically valuable, is thus deteriorated by awkward manipulation, and eventually becomes costly. The impossibility of obtaining the requisite number of skilled colliers alone restrains the efforts of those who have the means to carry on the work; but until it is removed Russia cannot hope to become an exporter of coal to any great extent. The native demand for steam coal is daily increasing, and it is probable that the output of all the pits now working, and of those opened for some time to come, will be needed to supply this demand. British ships, however, which visit the Black Sea have commenced supplying themselves at Taganrog with a sufficient stock of native coals to carry them on to the familiar coaling stations in the Mediterranean. The lack of efficient railway communication between the coal fields and the port restricts the supplies, while it enhances the price, which is nearly 2l. per ton. But if the railway system were better organised the supply is practically unlimited, and British shipowners might find it to their advantage to patronise the Russian coal dealers.

GYPSUM DIGGING IN SUSSEX.—While the Sub-Wealden Exploration has been exciting considerable interest it is singular that another important investigation, almost on the same spot—a search for gypsum—should have escaped public attention. The works are situated in the midst of a wood, about four miles from Battle, in a valley through which a small stream runs. On the hillside nearest Battle the Sub-Wealden boring works are situated, which are now at a temporary standstill. On the other side of the valley is a large wooden structure, similar to that in which the boring is carried on, and it is here the requisite machinery for the new work is erected. Some time after the Diamond Boring Company had commenced their task two strata of gypsum were come upon, one about 5 feet and the other about 8 ft. thick. Little notice was taken of the fact until Mr. Bosworth, who at one time was connected with the Sub-Wealden boring, turned his attention to the subject, and decided to sink a shaft as near as he could to the spot where the boring is now being carried on. The land forms part of the estate of Mr. C. A. Egerton, of Mountfield, and some portion of it was years back used as quarries, when grey limestone was excavated in large quantities. There are now living several old inhabitants who worked therein, some of the quarries being over 60 ft. in depth. In order to ascertain how far the gypsum seam extended, a piece of land was bored on Lord Ashburnham's estate, situated about two miles from Battle. At a corresponding depth the gypsum was found, and of the same thickness as that discovered in the wood at Mountfield. This gave the promoters confidence, and a well was shortly after commenced on the site previously mentioned. At starting as little expense as possible was incurred, only two or three men being employed, and progress was consequently slow. When a depth of 20 ft. was reached, it was found necessary to erect extensive pumping machinery to clear the water and for forcing the soil and stone. After digging through the soil about 25 ft., a layer of limestone was reached 6 ft. in thickness. Below this was a thick seam of very hard slaty material, which had to be blasted. At the present time five men are employed on the work. The shaft is now nearly 90 ft. in depth, and is lowered about 18 in. daily. It is over 20 ft. in circumference, and is lined with brickwork about 12 in. down. The work so far is carried out most satisfactorily, and the promoters expect that the desired mineral will be reached in about two or three weeks time, provided the work be proceeded with continuously; the depth they expect to go is 130 ft., and considerable interest is manifested in the undertaking. If the gypsum is found to the large extent that is expected, an extensive new field of labour will be opened, as it is believed the seam extends over a considerable portion of East Sussex. Gypsum is used principally for the manufacture of plaster of Paris, and the refuse can be utilised as manure for the land. The mineral is a crystalline substance, composed of lime in union with sulphuric acid and water. Its colours are grey, white, and yellow: but different varieties of it have different hues.

SULPHATES OF SODA AND POTASH.—Mr. WM. HUNT, of Castleford, has patented an invention which refers to the manufacture of sulphate of soda and sulphate of potash by the action on chloride of sodium and chloride of potassium of a mixture of sulphurous acid gas, steam, and atmospheric air. According to the invention the gaseous mixture or current is passed through the chambers containing the chloride in an alternately upward and downward direction; that is, the current passes downwards in the first chamber, upwards in the second chamber, downwards in the third chamber and so on, and after a time the current is reversed ascending in the chambers in which it had previously descended, and descending in the chambers in which it had previously ascended. The apparatus for conducting the manufacture consists of a series of chambers arranged in a circle with a conical tower in the centre. The heat given out by the decomposition of the chloride in the chambers is sufficient to produce the required draught through the apparatus without the use of a steam jet. From the top of the conical tower the gaseous current passes to the condenser.

CLOSING TINS FOR PRESERVED FOOD.—The invention of Mr. E. TEYSSENEAU, of Paris, relates to an improved mode of constructing and closing tins or other receptacles for containing preserved food, and for other purposes, whereby the operation of opening or removing the cover is facilitated, and the use of the knives ordinarily employed for that purpose is dispensed with; and consists in forming on the tin or other receptacle or on the cover of same a tongue or projection; and in soldering the cover to such tin or receptacle flatwise, so that by the application of a key or pair of pinners, or other suitable holding tool to the tongue or projection, the tin and cover may be readily separated or detached. For the purpose of expediting and facilitating the operation of soldering it is proposed to employ an improved rotatory soldering apparatus, consisting of a frame provided with two or more face plates or discs, each carried on a rod or spindle, on which face plates or discs the tin or other article to be soldered is placed, and with suitable gripping appliances or catches attached to bent or curved rods, which are acted upon by springs so as to cause the gripping appliances or catches to press upon the article being operated upon, the pressure being removed by a treadle when it is required to withdraw such article.

HOLLOWAY'S OINTMENT AND PILLS.—COUGHS, INFLUENZA.—The soothing properties of these medicaments render them well worthy of trial in all diseases of the lungs, in common colds, and influenza. The pills taken internally, and the ointment rubbed externally, are exceedingly efficacious. When influenza is epidemic this treatment is easiest, safest, and surest. Holloway's pills and ointment purify the blood, remove all obstructions to its free circulation through the lungs, relieve the overgorged air tubes, and render respiration free without reducing the strength, irritating the nerves, or depressing the spirits. Such are the ready means of saving suffering from afflicted with colds, coughs, bronchitis, and other complaints by which too many are seriously and permanently afflicted in every country.

FOREIGN MINING AND METALLURGY.

There is no doubt that the administration of the Belgian State railways has concluded contracts with the Cockerill Company for 10,000 tons of steel rails, with the Selsin Company for 5000 tons of steel rails, and with the Angleur Steelworks for 10,000 tons of steel rails. Adding a contract for 4000 tons of steel rails, let to the Rhine Steelworks Company at Ruhrort, we have a total of 29,000 tons of steel rails, with which the Belgian State railways are to be provided in an early future. The Belgian works have accepted the low rates asked by the German works—that is, about 106.8s. per ton. The State has done a useful thing for the general interests of Belgium in deciding in principle in favour of the replacement of iron rails by steel rails. At the present rates current for steel, as compared with iron, it is impossible to deny or dispute the great advantages of steel. In order to calm certain apprehensions occasioned to the proprietors of the Belgian ironworks by the result of an adjudication of Aug. 26, the Belgian Government has given them an opportunity of supplying 6000 tons of iron rails at 84.8s. per ton. Belgian industrialists appear to be entering upon a new order of things. The proprietors of ironworks, pure and simple, are asking themselves what they shall do if the State, their principal and best client, decides on only employing steel in future. While a solution of this problem is being awaited the Belgian works may be said, at any rate, to have worked assured them for some weeks to come. The general state of the Belgian iron markets can scarcely be said to have varied during the last few days. Orders have come to hand in tolerably quick succession, but the aggregate of the orders received is of little importance, and work is not assured for any time to come. The plate manufacturers and the rail manufacturers have, however, a sufficient amount of work to keep them going for some time. Rough plates have been offered at 154.4s. per ton.

No change of importance can be reported in the French coal trade. In the Nord the coal markets are maintained firmly, and stocks are being rapidly run off. In the basin of the Loire prices remain, on the contrary, feeble, and quotations may be said to be nominal for almost all qualities; coke has also remained scarce, and in demand at 14.8s. to 17.12s. per ton, according to quality. The Paris coal market is extremely quiet at present.

Some symptoms of an advance has appeared in the Belgian coal basins, but they cannot be said to be very serious at present. Working brickmakers are returning to their winter employment as colliers, and this will enable colliery proprietors to promptly re-constitute their stocks, which have been a little reduced. The labour difficulties which so long prevailed in Great Britain are closely watched in Belgium; a reduction of wages among English coal miners would be immediately felt as regards its consequences in Belgium.

The condition of the French iron trade is considered to have improved, and with the exception of some works in the department of the Nord all the establishments of the great centres of France appear to be satisfied with the state of affairs. Prices remain without variation, although they are supported with firmness. The Creusot works have delivered for artillery experiments some steel cannon, which have shown what solidity, and at the same time what economy, can be arrived at in the production of steel artillery, intended to replace bronze cannon. The steel cannon of Creusot may be said, it is stated, to be discharged 2000 times without becoming unserviceable, even if the maximum charges of powder are employed. This, of course, is a somewhat remarkable result. The Marseilles Gas and Blast Furnaces Company will pay Oct. 1 the balance of its dividend for 1873, or 14s. per share.

MINERAL BELT OF GILPIN COUNTY, COLORADO—No. II.

Our last chapter treated on the gold portion of this belt of mineral rocks, we will now briefly delineate the south side silver belt, and as opportunities occur shall notice all the mines therein; but as these papers are designed more for inductive purposes than individual representation, we shall, *pro tempore*, take only those that have been developed as guide marks along the course of our track. On close examination it will be found there is a great change lithologically in the formation; the sedimentary granites are gradually becoming loam, and quartzite taking their places, blue gneiss is the most prominent rock. Near the Black Hawk smelting works, of Prof. Hill and Co., is a ravine, known as Slaughter House gulch; the formation here is anything but congenial for profitable minerals, it contains large masses, and contorted strata, of diorite and mottled gneiss, but about 500 yards up this gulch there is a sudden change in the rock, the hornblende dies out and a ferruginous micaceous rock comes in, which is followed by white, green, and blue gneiss, and bands of massive quartzite. In this is a very fine lode, called the Gilpin, or Coley, sending off a variety of branches and spurs, the several openings on which are pre-empted under a great variety of names. The ore from this mine yields from 100 to 400 ozs. of silver, with a little lead and grey copper. Taking this as a starting point, and going south-west, we cross North Creek valley, and skirting the gold belt on Bolshail Hill we find the Running Mine, on which there are ten shafts sunk; in one of them we find a course of solid silver-lead ore 14 in. thick. The course of the lode (which is well defined) appeared to be S. 60° W., but deflected a little in crossing the ravines. Continuing onward south-westerly, but keeping away from the great Mammoth lode, which is the best for gold, we arrive at the junction of Willis with Russell gulch. Here we are on the Clifton range of lodes, and the first mine, or rather mine opening, worthy of any special geological notice is the Hibernia it is a most singular deposit, the lode is very large, and as far as at present sunk on it is immensely productive; the ore is an argentiferous fluor galena, the first that has ever been found in the county at this time, and until some further developments are made this curious deposit is an enigma; the ore is not very rich, some assays were made a few days ago; the first sample run 100 ozs. in silver, and 55 per cent. in lead; the second 30 ozs. of silver, no lead, but with a trace of gold, average smelter's value 882 per ton. Onward up Willis gulch there are several other small mines. At the head of the branch is the Adulard Mine, with a shaft sunk 80 ft. deep on a very fine course of ore, consisting of copper and silver-lead. Next comes the Clifton; here a series of adits have been driven on the lode; it is operated by an English company; it is exceedingly productive, but the ore is very low grade, nevertheless it is well paid, anything about the business. Over the hill, but on the same lode, some of the ore assay from 300 to 500 ozs. in silver. Parallel with this is the Seaton Mine, one of the main silver-lead lodes of the district; it has shafts over 200 ft. deep, and is found both rich and productive; we have samples that assay 750 ozs. of silver and 60 per cent. lead. Intermittent with this and the Clifton are several fine lodes; among them are the Queen, Florence, Veto, and Franklin, all very productive, and some of them exceedingly rich, the average of the first grade of the ores may be taken safely at 200 ozs. Concentrating works in this neighbourhood are very much needed. South of this no mines of any note have been worked at a profit, although numerous trial pits have been sunk in places throughout the hills, from which there are reasons to think this group of lodes are on the edge of the silver belt. As no practical geological survey has ever yet been made, it is mere guess work to define the limits of this argentiferous range of rocks to this width; externally viewed, there is an apparent change, they are coarser in texture, darker in colour, more irregular in deposition, an absence of true stratification, and less mineralised. Some of these defects may arise from displacement, mountain slides, and coersive atmospheric action; the hillsides are very abrupt and precipitous. Most of the mines are at an altitude of over 2000 ft. above the valley of South Creek, but there are excellent wagon roads throughout these mountains.

CHARLES B. RICHARDSON, Mining Engineer, &c.

NEW WELDING COMPOUND.—So many difficulties surround the process of welding iron or steel that inventors have long essayed to originate some plan by which the desired union could be more perfectly accomplished. Both pieces of the material intended to be joined have had to be heated to such a degree as frequently to impair their value for after use. If there is a chemical difference between the two pieces, the assimilation at the point of contact is not perfect under the ordinary method of welding, and a fracture at that point is more likely than at any other place; besides, under such conditions, the welding shows so plainly as to mar the appearance of the finished work. In order to facilitate the welding process borax is commonly used. Singly, or in combination with other materials, it is a most valuable agent in promoting the welding of metals, but the recent discovery has resulted in the introduction of a welding compound which is altogether unequalled in its practical efficacy. This compound consists of calcined borax, mixed in proper proportion with wrought-iron reduced by grinding or other means to particles a little larger than coarse filings. The effects of the use of this almost magical powder are easily described. The pieces of metal intended to be welded are heated only to a cherry red, then a small quantity of the compound is sprinkled over the heated end of each piece, the ends are placed in contact, the hammer does its share of the work, and the union thus accomplished is so perfect that no steam-hammer can effect a fracture at the same place, and, when polished, the eye cannot possibly detect the line which should mark the junction. Whether cast-steel and cast-iron, cast-steel and wrought-iron, cast-iron and cast-iron, and wrought-iron and wrought-iron is desired to be welded, the union in each case is equally close, and the results are uniform. All of them can be welded so perfectly that the heart of the blacksmith and of the machinist rejoices at the operation. Rolled metals can be treated in the same manner. At the Delamater Works, and at the manufactory of the fire and burglar proof safes of Messrs. Terwilliger and Co., New York (who declare in a published testimonial that it surpasses the best welding material they have ever tried), it is used for uniting iron and steel plates, so as to give to an iron plate a coating of steel on one or both sides, while the result is such an intimate union that it is utterly impossible to distinguish with the naked eye that the plate is not one homogeneous piece. The rolling takes place, as stated, at a low cherry-red, which has been found to produce a saving in fuel of 20 per cent., and a saving in material, as the unavoidable loss of weight in the iron by the formation of scale, so considerable

at a high temperature, is reduced some 70 per cent., or even more. Experiments are shortly to be undertaken at Trenton, which are expected to show that iron rails can be provided with steel heads so perfectly welded that they cannot be separated even at the ends, and the New York Iron Age says, it is already established that old Bessemer rails can be re-rolled with it as perfectly as if they were soft iron, and at a heat but little above that to which iron must be brought for the rolls. Mr. H. Schierloh, of Jersey City, owns the patent for the compound, which is already in use in many large iron-working establishments. In this city he has established an agency for Eastern Pennsylvania with Messrs. Panooset and Maule, the well-known wrought-iron pipe makers. These gentlemen bear witness to the wonderful properties claimed for Schierloh's cherry-head welding compound, and will cheerfully satisfy all who may wish to inspect personally the results of its use. Mr. Joseph Hunt, superintendent of the Crane Iron Company, says, under date of 2d inst.:—"I got the compound to use in steeling the points and angles of railroad crossings, of which we have quite a number, and we find we thus run no risk of burning the steel when welding on the iron. I also tested the compound by cutting a steel bar, welding it again, and using it as a chisel found the steel as good as before. I cordially recommend its use for welding purposes."—*Bulletin of the Iron and Steel Association* (Philadelphia).

FOREIGN MINES.

ST. JOHN DEL REY.—The directors have received the following telegram from Morro Vel: Produce 12 days of August (third division), 11,500 ois.; yield, 7.8 ois. per ton; produce per diem, 963 ois. Produce for the month of August, 25,800 ois.; yield per ton, 7.3 ois.; produce per diem, 837 ois. Telegram, dated Rio, Sept. 22.—Produce 11 days of September, 9750 ois.; yield, 8.3 ois. per ton; produce per diem, 886 ois. Profit for the month of August, 4800l. Water short, and very dry.

PORT PHILLIP AND COLONIAL (Gold).—Telegram, Melbourne, Sept. 18:—"Month ending Sept. 9, yield per ton 3 dwts. 13 grs. Struck western reef at the No. 9, or 790 ft. level; looks well."

RICHMOND CONSOLIDATED.—Telegram:—"£42,000 since starting last week; \$48,000 in all."

MINERAL HILL.—Mr. Oakes, the superintendent, Aug. 31: We have raised during the week 80 tons of ore of an average grade of \$60 per ton. The prospecting goes on without change; good work has been done during the month in the Taylor tunnel, the north drift has been driven 20 ft., and is now in limestone, which is more favourable for driving. The explorations during the month have been carried forward 4 ft., by six men, without striking any mineral. A new prospecting shaft has been commenced sinking south of Austin Company's ground, in limestone, which appears to us a likely place to find some mineral. We shall keep two men exploring round and about the hill as long as the state of our finances will allow, and I hope the work may be attended with success.

THORNHILL REEF.—The following telegram has been received from the gentleman who was instructed by the board to inspect and report on this company's property:—"Thornhill inspection very satisfactory. Undoubtedly good property. Works should be pushed on. Report by mail."—JOHN LEWIS, Manager, New North Clunes."

BIRDSEY CREEK (Gold).—G. S. Powers, Sept. 1: Since my last there is nothing of interest, except the progress made in the tunnel and shaft in the month of August; the tunnel is now in 350 ft.; time, five months and ten days, or an average of 65 ft. per month. The shaft has 10 ft. more to sink to grade of tunnel. I have prepared the heavy timbers for foundations for drift frames, and am rebuilding the shaft, after the South Yuba water falls. No claim is washing steadily without any apparent change, except that we are constantly wearing away the drifted ground. I shall keep up here about the 6th inst., and send cablegram as usual.

UTAH (Silver-Lead).—J. Longmaid, Sept. 4: It is with the greatest regret I have to inform you that I have been compelled to close the mine, which I did on Tuesday, the 1st inst. First, the mine is worked out, with the exception of very low-grade stuff and some carbonate, which I hope may pay for working. Secondly, the ore is exceedingly difficult to smelt on account of the blende, and the parties who bought the first lots will not buy any more until they have used all they have; they say it smelts so badly that they can only mix it in, little by little, with other ores that smelt better. We commenced again to-day to dress up the ore already raised (about four days' work), and then I shall try carbonates for a few days. I have but little expectation, even if the carbonates pay, that I shall be able to find ore enough to keep the works going for more than a short time—say, two or three weeks. Mr. Argill cannot yet make up the July accounts, as we have not yet sufficient cash in hand to pay July wages, and the merchants' bills still remain unpaid. It will probably be near the end of this month before they can be sent off. Mr. Argill will not lose a day. I am waiting anxiously for your instructions as to the disposition I am to make of the mine, &c.; I hope you will cable me without a moment's delay to a cable agent, as I may, as things are, be unable to get out of the country. I have lately employed a large force underground, hoping to find other bodies of ore, but without success; but, unfortunately, this effort has used up all the surplus I anticipated, and I almost fear I scarcely have means to meet all our liabilities. The fall in the price of the ore has also deranged my calculations considerably. Mr. Bateman informed me he would be here by the 1st inst., but he has not yet arrived.

NEW ZEALAND KAPANGA (Gold).—Capt. R. Clymo, Aug. 1: I am glad to inform you that our shaft sinking is progressing more favourably than for some time past, the sinking for the last month being about 18 ft., and the water somewhat decreased, which I hope will enable us to make still greater progress. We have met with three veins in the last 8 ft. of sinking, of a highly promising character, carrying an abundance of mica, with fine-looking mica and a floor, accompanied with small bands of quartz. I think it more than probable that as we go down we shall continue to meet with these branches until we reach a lode. I am induced to think this from the fact of the present bottom showing no sign of footwall country, a striking difference being observable in all instances that have come under my notice between the hanging wall and footwall ground. Should we meet with a new lode in this fine country, surrounded by such strings and veins of such an extraordinary promising appearance (and I am sanguine enough to expect it, and on its being auriferous), the value of it cannot be too highly estimated, being over 200 ft. of backs in which we are working, which would soon enable us to make returns, and help us forward to the point at which we are aiming—the rich run of gold gone down in the Old Kapanga Mine, admitted by one and all to be the best and most continuous run in the district. I am glad to state that our engines and pitwork are working exceedingly well, and we have concentrated our whole forces in pushing forward the shaft sinking. We might advantageously be advancing some of our stamp-work, but at present we have not a single head employed that could be dispensed with.

I assure you that we have done all in our power to forward the work with all the dispatch the men at our command would allow, and in a new country, with much rain in winter, with the surface at times in a most deplorable state with mud, and the adaptation of work peculiarly new to meet local circumstances, it has taxed our ingenuity to do what we have done, and may fairly claim to be reckoned at least as good bush engineers. It must also be remembered that all labour here costs three times as much as in a Cornish mine—that is to say, 12,000l. spent here is equivalent to 4000l. spent at home. I have been here now one year and seven months, and have seen the following work completed:—Three good dwellings, houses, store, stable, office, smith's shop, cooper's and saw shed, portable wind-engine and horse large engine, and boiler-house, two miles of tramway, and a large and well-timbered shaft sunk 212 ft. I think it must be obvious that in doing this work we have studied economy, and will bear favourable comparison under analogous circumstances, with any foreign company. My faith in the success of the company, if the mine is thoroughly developed, is very great, and based on the most reliable grounds, and I hope to remain here to share its prosperity.

KAPANGA.—J. Thomas, Aug. 3: During the past four weeks the contractors have sunk and timbered the engine-shaft 18 ft.; total depth, 212 ft. to date. Not being able to procure three good miners during the past month to make the complement of at least nine men, as I hoped would have been obtained, caused the depth sunk under the average estimated for four weeks' work, although a fairly quick work has been done with the class and number of men employed. At the present time I am glad to say that I have obtained three additional miners—the best I can get—consequently more expedition will be made in sinking during the present month if they remain. Owing to the present scarcity of shaftmen I have found it impossible to get as good a staff of miners as is required to hasten on the sinking operations as I could wish. I am much pleased to inform you that the ground continues good for sinking, the late change improving its character, with the dislocations of strata visible, which leads me to infer that the cause of disturbance proceeds from the effect of a strong lode being close by. The mineral compositions contained in the present layers of strata sinking through are much more abundant, more dense and strong than before seen, and the colour of the country has

become precisely the same as the miners well-known "blue crushing" dirt, or the compact pyriticous infinite auriferous belts everywhere found here in the yielding gold-bearing lodes. In the past few days another splendid change of ground was sunk through, composed of the most kindly description of country, carrying a small well-defined leader of crystallised quartz and carbonate of lime, containing much mud; it varies in width from 1 to 16 in., and at the widest places presents many crystallised vagues, rich in mud, in the form of metallic scales. The branch runs longitudinally with the shaft about north and south, dipping with the floors of the strata westerly at an angle of about 30°. After sinking through the footwall of this branch 4 or 5 ft., a second parallel leader or branch of quartz was met with, being still more heavily charged with minerals, and showing superior indications than the first leader presents. The quartz now assumes a more compact, pure, crystallised form, and the composition more kindly for carrying gold. This branch is of about the same size, and runs in the same direction and dip as the first branch above described, the country between these branches being highly mineralised and full of mud, and much disjoined with cross-heads.

In an open joint, or fissure, a third and smaller branch than either above mentioned has just made its appearance, running at right angles to the others in an east and west direction dipping north. This cross branch is 1 to 3 in. wide of the same composition as the other veins, which will probably prove a defined east branch or lode, emanating from the same source as the others. I am much pleased with the appearance of this branch, intersecting at right angles the longitudinal lodes or leaders met with, which may be of great importance ultimately. I am of opinion that we have not yet reached the true footwall of this strong mud-filled belt of country, when that point is seen I feel persuaded a powerful lode will be found underlying these minerals, and strong indications met with during the past 18 or 20 ft. sinking. After the shaft is sufficiently deep that the surrounding water drainage is lowered below the present depth I will put on some men to open on these branches for a few days, to see more of their composition and value than can be ascertained at present. I send you two samples by this mail, consisting of an average sample of quartz from the leaders, and sample of the mud from the vagues for assay. The water is not pouring into the shaft in such quantities last week as it was previously, and the drainage of the old mine continues at a regular rate as the engine shaft is sunk, the water being drained below adit level 64 ft.; depth drained for the month 19 ft. During this wet season all surface work, comprising the stamps erection, and delivering the foundation timber for same, from the bush to the mine, has been obliged to be suspended until dry weather and longer days will arrive to cheapen and facilitate this work. The machinery and pitwork are working exceedingly well, the 24-in. cylinder rotary engine proving to be one of the best kind that could be constructed.

SWEETLAND CREEK (Gold).—G. D. McLean, Sept. 3: We are probably going to be short of water again this season. I had a conference with the agent of the Milton Company a few days since, and he informed me that the present water source would fail about the last of this month, and that the Milton ditch would not be completed before November 1. This will leave us with water for one month. If we end the run at the time you request we will not have time to make another before the water is out, and a half finished run is often attended with its being necessary to wash the top and poor part of the blast first. It may be that I will cable you on the subject. I am surprised and disappointed at the sloth of the Milton Company in again disappointing us in not completing their aqueduct, I was doubly assured last year that there would be no stop in the completion this year by the time the Boardman reservoir (the present source of supply) would give out. However, they have 1000 men at work, and if the delay is only for one month we will not suffer much. I would not vouch for their getting done by November 1, but they seem confident. We are washing with the industry admissible, owing to the probable scarcity of water. We washed night and day last week, and would do so constantly but for want of water, and the difficulty of keeping lumps pulverised so as to use the water to good advantage. We are working between 40 and 50 Chinamen besides the white force, in order to keep well up with the water, but one of our 15-in. distributing pipes broke yesterday, by which we lost about 150 blocks; no other damage worth mentioning. We are now replacing the old pipe with new, and shall not probably have a recurrence of the same. We also had two men knocked down with blasts, but neither severely hurt. Our mine is working as finely as ever before, and all looks favourable, except the channel, of which I have before written you. We have displaced more gravel this year than any two years before, and if the quality had been as good our profits would have been grand; our facilities have been better than any other year, and we have had double the supply of water. We have run off an immense body of the stuff, but of lower grade. At the same time being here, and knowing better than you can all the barriers met with in the procedure, the toughness and poverty of the under bank, the heavy cost of materials and labour, I think we have done pretty well. If we had the same quality of gravel now as when I took charge of the mine, and the same facilities for running it, I am satisfied we could return \$80,000 to the run of six weeks. Our last blast of 450 kegs was unusually good, and we are running it with a rush.

INDEPENDENCE GOLD QUARTZ.—According to the latest advice all the preparations for sinking the shaft to the 6th level had been completed, and a force of men was actively engaged in removing the debris accumulated in the 70 ft. already sunk. Should this work not prove unexpectedly heavy, intelligence may shortly be received as to the prospects in this most important portion of the mine. The slopes at the 4th level of east shoot continue to look well, and the reserves are steadily increasing.

NORTH AMERICA (Gold).—D. W. C. Morgan, Aug. 28: During the last two days the gravel at the end of the main tunnel, which has been 4 ft. and more above the top of tunnel for some distance back appeared abruptly in sight in the roof of the drift. Its pressure there, accompanied as it is with a torrent of water and, and the surface of the rock very soft, has given us a vast amount of trouble. We had supposed the surface of the rock to be rising, so that had the tunnel been run without grade the floor would have been at least 15 ft. below the surface of rock. Our purpose has been to grade the tunnel, so as to keep about 4 ft. below the top of the rock. I am in hopes that the new development may amount to nothing more than a depression, or hole in the rock, and that we will soon get out of it. To have the rock again commence to incline would be unfortunate indeed. The ground in the extreme south breast has been driven cut very much, and a full force of breakers have been got into it, and indications look favourable for continuous working at this point. This breast is located between Nos. 2 and 3 sub-drifts south, and is 80 ft. in width. The gravel does not at this moment look quite so well as I could wish to see it, being sandy, and mixed with much light float bed-rock; it may change for the better in a few weeks more. An air connection has been made through the block (80 ft. wide), between Nos. 1 and 2 sub-drifts south, and we shall now be able to run the 1, 2, and 3 sub-drifts south rapidly. On the north side there is to be done some work, and tedious work to get the sub-drifts run up to and into the higher rock; the ground on this side is apparently better for a gold product than the south side, but it is very wet, and will be slower to get open. I shall make the best progress possible in opening here. If the work can be pushed ahead vigorously from this time I think there will be no difficulty in getting a good opening in new ground by middle of November.

CAPE COPPER.—Capt. Tonkin had proceeded to the Orange River to start trials upon the company's mining centres there. Men and stores had been previously sent.—Railway: Traffic for fortnight ending Aug. 8, 135 tons up and 230 tons down. The Ocean King, to load about 600 tons of ore, arrived at Port Nolloth on Aug. 9, and the Hondeklip, to load about 400 tons, on the 16th. Bill of lading is received for 220 tons of ore per Nyanza and African; 405 tons of ore have been sampled, for sale on Oct. 6.

WEST CANADA.—Sept. 2: Huron Copper Bay: The lode in the slope in the bottom of the 35, west of Palmer's shaft, is worth 2½ tons of copper ore per fathom. In the slope in the bottom of the 50, east of Bray's shaft, the lode is also worth 2½ tons per fathom.

[For remainder of Foreign Mines, see to-day's Journal.]

GOLD RUN.—The old Cedar and Sherman claims were sold to an English company in February, 1873, and are now known as the Gold Run By-Drill Mining Company (Limited), of London, England. After changing hands, the ground was worked one season and netted the company a handsome profit. In May, 1873, they commenced sinking the shaft, and discontinued work on July 2 for want of water to run their hurdy-hurdy wheel with, 10 in. of water being used to do the hoisting. In April, 1874, work was resumed, and after many difficulties bed-rock was reached at a depth of 18 ft. As the 500 ft. has already been washed from this claim, the bottom of this shaft is not far from 400 ft. below the original surface. There is yet 165 ft. of splendid hydraulic gravel, and then 16 ft. of blue cement for milling. Two dollars and a half to the pan from dirt not selected was the prospect got; and though well satisfied before that the ground was rich it has a tendency to stiffen up the whole mining community, as it proves this gravel deposit to be one of the richest and most extensive in the world. The stock of this company is principally held in London.—*Mining and Scientific Press of San Francisco*, Aug. 22.

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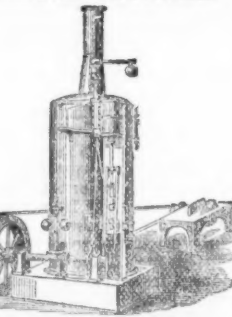
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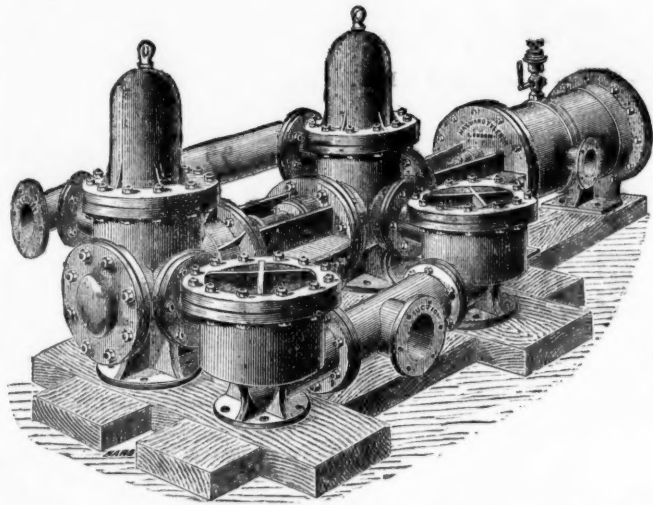
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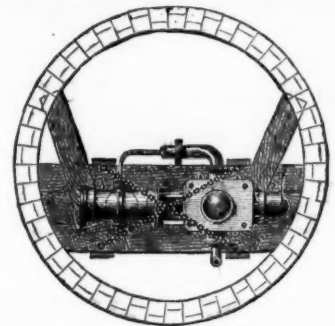
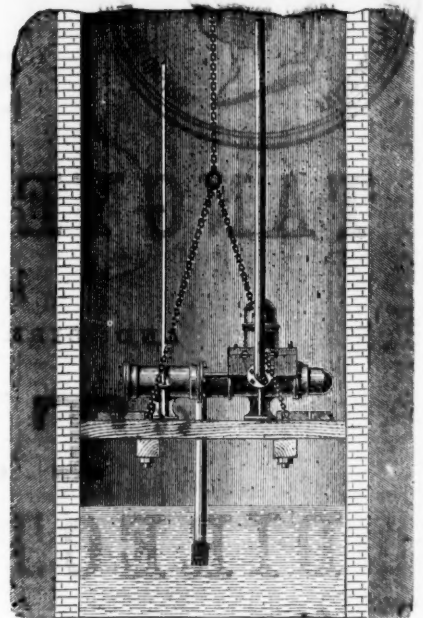
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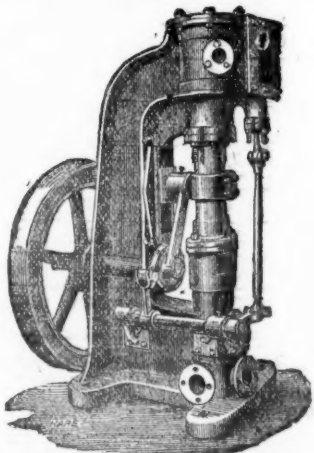
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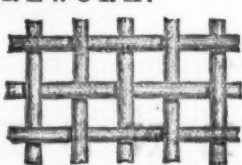
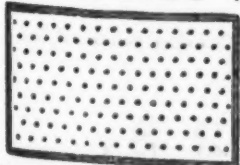
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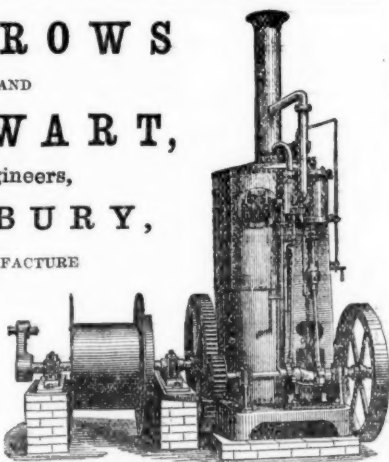
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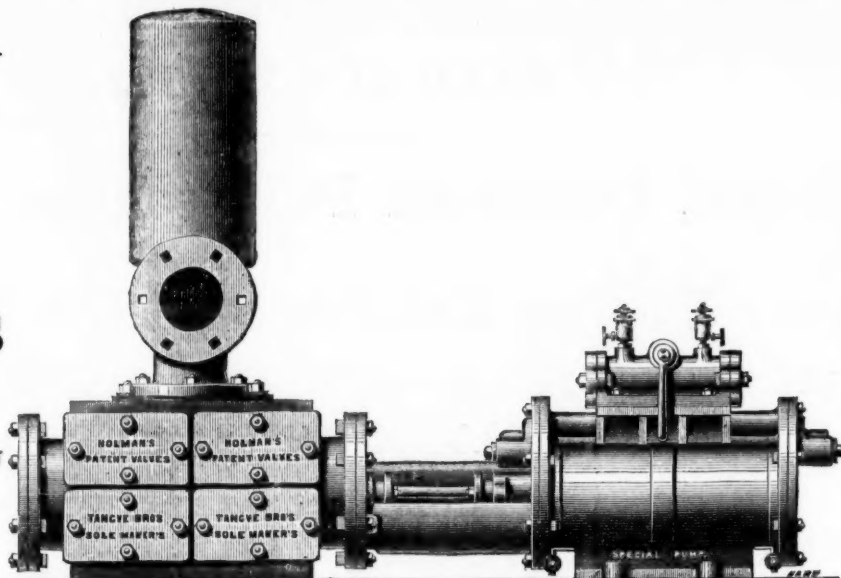
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Length of Stroke	Inches	12	12	18	12	12	12	18	24	12	12	12	18	24	24	18	18	18	24
Gallons per hour		7330	9750	13,000	5070	7330	9750	13,000	16,519	5070	7330	9750	13,000	16,519	20,000	7330	9750	13,000	16,519
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Diameter of Water Cylinder	Inches	10	12	7	8	9	10	12	14	8	9	10	12	14	9	10	12	14	14
Length of Stroke	Inches	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Gallons per hour		20,000	30,000	9750	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000	16,519	20,000	30,000	40,000	40,000
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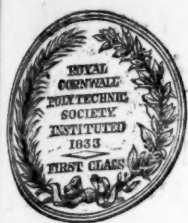
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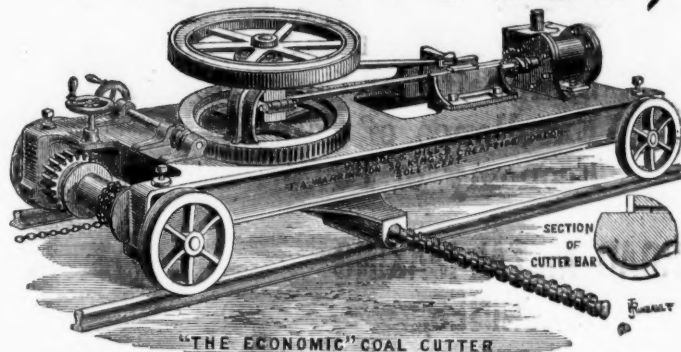
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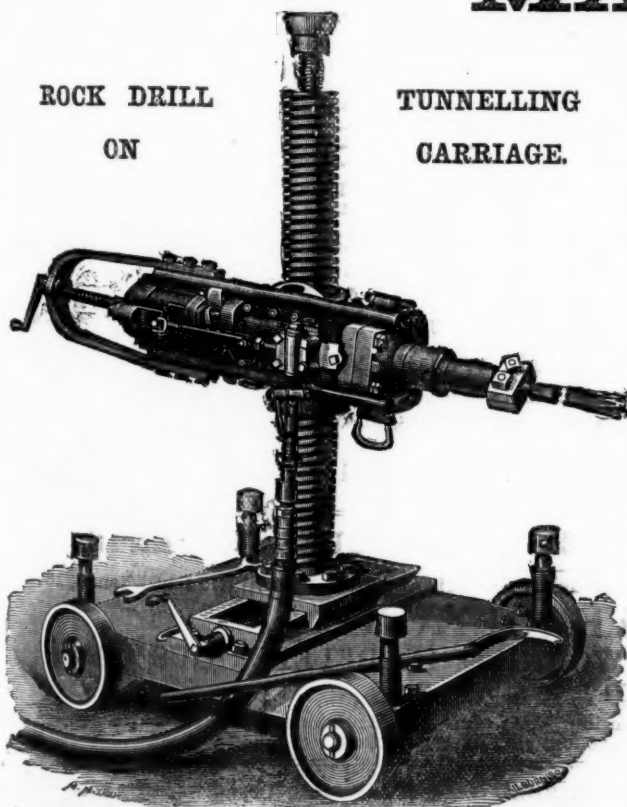
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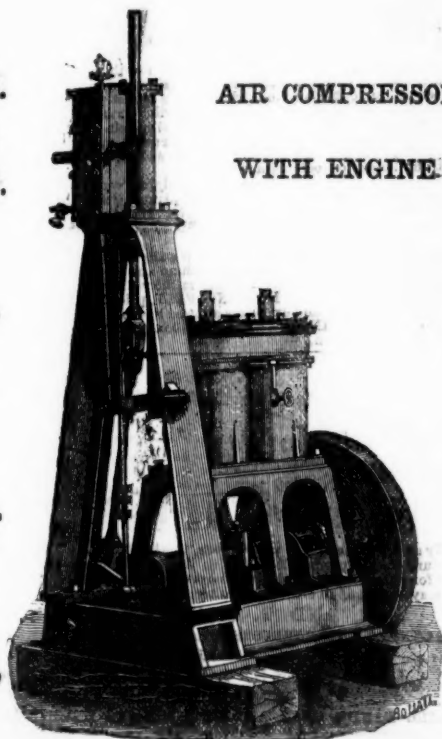
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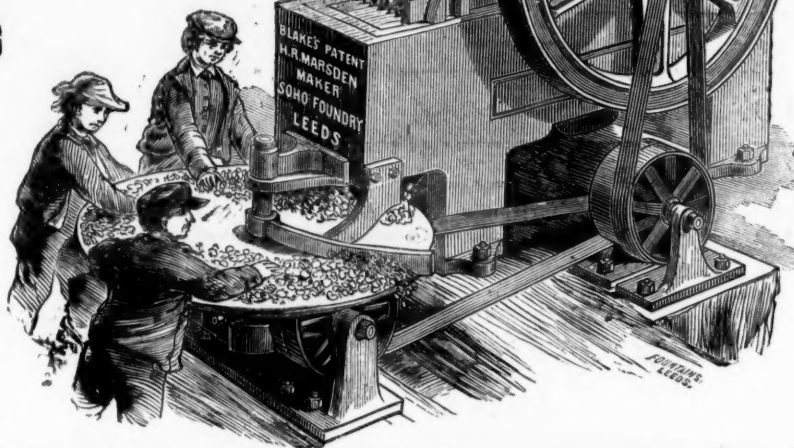
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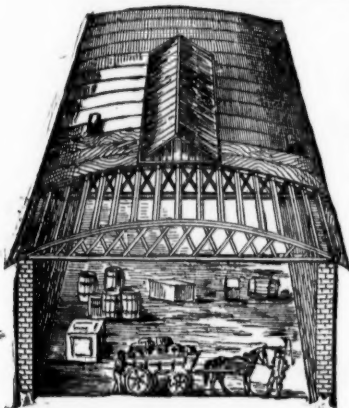
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